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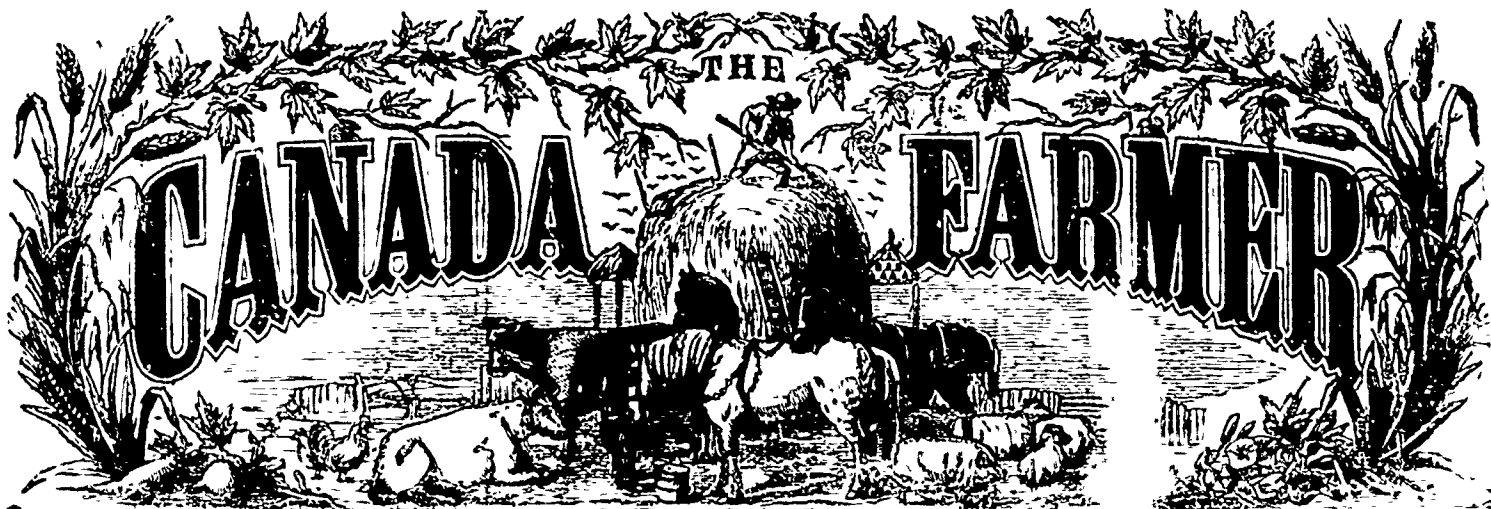
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The Field.

Moreton Farm, near Rochester, N.Y.

The Editor of the *Country Gentleman*, in a recent issue of that excellent journal, gives notes of a visit to the above farm, owned and occupied by Joseph Harris, formerly editor of the *Genesee Farmer*, and latterly so well known to the farmers of this continent as the writer of "Walks and Talks," in the *American Agriculturist*. Mr. Harris is an Englishman in the prime of life, who after obtaining the thorough groundwork of a scientific and practical education in agriculture, and assisting in the celebrated experiments of Messrs. Lawes and Gilbert, at Rothamstead, England, emigrated to the State of New York, where he has for some time stood in the forefront as a practical farmer and an able agricultural writer. His farm consists of 285 acres. It was in a wretched condition when he took possession of it about ten years ago, and he has not even yet brought it up as a whole, to that standard of productiveness and state of order at which he aims. Nevertheless, a great revolution has been made in it. Underdraining has been made the starting-point of progress, as indeed it must be in every case of real and permanent success. About seven miles of drains have been constructed, and the descent being quite moderate, large tiles have been found necessary. The mains vary from four-inch pipe to five-inch, double five-inch, and in some cases ten inches in diameter, and though thus large, discharge nearly full in wet weather, demonstrating very decisively their utility. The result of this underdraining has been in the highest degree satisfactory. In one place, on low land, the visitor saw a luxuriant crop of oats and peas growing together, and a similar crop last year yielded 86½ bushels to the acre. In another place, a remarkably thick and heavy field of clover was seen, the result of drainage and thick seeding. The land was very stony when it came into Mr. Harris's hands, but the stones have been picked off and built into neat walls as farm fences, and the rough ground converted into smooth and mellow surfaces, easy to till and pleasant to look at.

Mr. Harris is determined not to grow weeds, and so wages incessant warfare against them. His notion is that if part of them can be destroyed as in ordinary practice, they can all be got rid of by more thorough treatment. He will not suffer any to line the fences, or lurk in corners, and as for their contesting the field with useful plants, that is out of the question. What persistent measures are taken to get rid of weeds may be inferred from the following statement. "A fifteen acre corn-field which we examined, had been harrowed four times over the whole surface, when the corn was small, with a smoothing harrow, and the man who had the field in charge was then

running the one-horse cultivator the fifth time between the rows. Such thorough work leaves little room for vegetable intruders."

A fine Northern Spy orchard of 220 trees, about twelve years old, is noted as an object of special interest. It is kept grazed short by a flock of Cotswold sheep, and receives a regular top-dressing of manure. The fruit is in fair quantity and of superior quality, the codling-moth being kept down by the sheep eating the small fallen apples. The sheep never injure the bark of the apple trees.

The item of chief profit on this farm is the swine. Mr. Harris prefers Essex pigs to all others, even the Berkshires, as giving the best side pork, and being of a peculiarly quiet and contented disposition. He has at present about 150 of these animals. The sales are mainly for breeding purposes, and so high is the reputation of the Moreton stock, that orders come in quite as fast as they can be filled. Last year the sales amounted to \$4,000. Mr. Harris is the author of a valuable treatise "On the Pig," published by O. Judd & Co., of New York, and is not only a good theorist, but a successful breeder.

On the whole, this may be taken as an encouraging instance of what can be done with a poor farm under judicious management. Mr. Harris was not a capitalist who could afford to bury a great pile of money out of sight. He was in moderate, if not straitened circumstances, when he began the task he has so well accomplished thus far. "In the sweat of his face," i.e. by the combined effort of brain and muscle, he has won and eaten his bread. We chronicle his career as a farmer with pleasure, point to his example with pride, wish him largely-increased prosperity, and hope many more will follow in his footsteps.

Haymaking.

An "old Scotch Laird" gives the following excellent and seasonable advice upon the above important subject. It is in perfect accord with the directions laid down in a recent issue of this journal:—

"That hay should be mowed when the blossom drops from the plant, and while the milkiness is in the seed, is a generally received maxim; but the successful winning of hay is concerned mainly with the time that elapses between the mowing and the final storing of the crop for preservation in the rick. Where rye-grass is grown for seed the case is different, as the seed or pick must be well filled, even though some of them should be shed in the act of mowing for the seed at this stage holds very slightly by the gloome. Clover, like rye-grass, is also best harvested immediately after blossoming, and it bears very little stirring. It would suffice to turn the swathe once in preparation for cocking. We do not accord with the said writer as to forecasting the weather, though the fluctuations or range of the annual rainfall are known, and may be guessed approximately; that knowledge offers no key as to the time of occurrence of rain in our fickle climate. We enjoy no immunity from rains at any special time, and the early part of July is not unfrequently characterized by wet weather.

By certain appliances some farmers succeed in harvesting corn and hay crops independent of weather.

Mr. Neilson, of Halcwood, states that he carries his hay before it is in condition, in order to escape untoward weather. He places a wooden trough the whole length, and in the centre of the rick, which he provides with slides to let on and cut off the passage of air. Each rick is also built with a vertical channel that communicates with the longitudinal trough formed by a sack filled with straw and gradually drawn up in the progress of building. He then applies currents of cold air to the whole, by means of a fan driven by a one-horse engine, and the hay becomes perfectly cured. He claims in behalf of this scheme a saving of three-fourths the expenditure of manual labor.

It is half a century since we have known of this plan having been acted on; and in the dripping climate where it was tried, it was a partial success; but however practicable it may be, the scheme was never accepted but by the original experimenter. The great thing in curing hay is "cocking," and not leaving it spread out till all the substance has evaporated and the hay rendered almost worthless. If mowed dry in the morning, and then tedded, if in a windy and sunny day, it may be cocked before night. If properly cocked, an ordinary rain will not injure it, at least but very little. Clover, as well as all descriptions of hay, should show a green color, and emit a honey odor, which may be secured by following the above directions. These rules are carefully followed by growers who sell their hay, as they always command the top price; but in districts that we could name, thousands of pounds were lost in past years, by the damage sustained by rain, the last days of June having been showery, and the downfall in July being no less than 4½ inches.

After calamities, it has been well said, it is the best time to apply remedies, for then they are best attended; and much may be done by the exercise of skill, promptitude and watchfulness in counteracting the effects of untoward weather. The common practice in some counties of carrying it to the rick with waggons, is the weakest point in haymaking during catching weather. Cocking, or "coiling" as it is styled, is the only way by which hay can be made in leaky districts, for by this method as much can be done in one day, as may be done in four by hauling to the rick. Aeration is indispensable, but the less sun and rain the better, for it can be won withering in the small pyramidal heap without detriment from sun or rain. In the comparatively green state, it is not easily spoiled by wet, as it is somewhat impervious to rain, but after it once becomes hay it is soon damaged. This fact should ever receive attention, for repeated broadcasting and successive drenchings, after a day or two, are its ruin. If rain should follow the tedding process, it ought to be dried atop before doing anything more with it. If rain is imminent, it is safer in the swathe, but in reliable weather, the hay-making machine should shortly follow the mower. A day lost in a tract of uncertain weather may involve the loss of half the value of the crop, so it is of paramount importance to use every means to abridge the period of exposure. Much must depend upon experience and observation in the whole processes indicated, for such is the diversity of the condition of a crop, both as to dampness from recent rains, as well as to the amount of the internal sap or juice of the plant, that it cannot be expressed in terms that can be understood in its progressive stages of seasoning. It should be also noted that prudent husbandmen never take down too much of the crop at once, unless where there is a great command of workers, for with a large breadth the hazard is intensified, and careful and skilful precautions never fail to reward the pains in the long run.

Fertilizing Sandy Soils.

Nearly all sandy soils are poor from the fact that they are destitute of vegetable or organic matter. They are composed of crystals of silica, a small portion of which are soluble, and there is frequently existing a little organic matter. Thus it is that the grain planted in such a soil sprouts, shoots up a thickly yellow stalk which can hardly support its own weight, and never yields any grain of value. Subliminal fill the crevices of farms on such soils. There are thousands of acres of land of this character scattered over the country, frequently near rivers, and there is a long belt of such soil along our whole Atlantic coast commencing with New-Jersey. A great part of this land is underlaid with marl, and at many points swamps are accessible; from these two sources may be derived the best means of fertilizing those lands. But there are many thousands of acres of sandy soils not accessible to these basins of fertilizing matter which nature has provided; to such some other means must be applied.

Sandy soils do not hold manure for a great length of time. Hence the question to be studied first is—is there a sub-soil not too deep to be ploughed up so as to mix with the sand, thus forming a soil which will hold a fertilizer? But this clay under-soil may be at too great a depth to admit its being ploughed up at profitable rates; then the question must be to fertilize the upper strata of sand alone. The first point to be attained in this is to make the silica of the sand soluble, so that the stalk of the grain may have strength. This is done by the addition of an alkali, a green crop, or by any decaying vegetable matter. To say that these chemically different substances are alike in this respect may seem singular, but they all tend to make the silica soluble. The first does it by combining with the silicic acid and forming a silicate of soda, potash, or lime, as may be the alkali used. The second and third act similarly, as in the course of vegetable decay an acid known as humic acid is generated, and this acid has the ability to resolve silica. But it is always better to use an alkali in connection with a green crop, for the reason that then the alkali will act in making the silica soluble, and the humic acid of the plant will be left free to resolve itself into ammonia. Therefore, a judicious combination of an alkali and a green crop can be made the best and cheapest of fertilizers for a sandy soil.

It may be argued that the soil will not, of itself, produce a green crop. A fine sand will not, but if one adds to that sand nitrate of soda, or carbonate of potassa, and sulphate of ammonia, then a crop may be grown. This, ploughed under, will give a basis for operations the next year, when, with a further use of those chemical fertilizers, a still better green crop may be obtained for ploughing under. By such a course, with care and patience, the most barren sand may be made a fertile soil. Then, if the sandy soil be utterly barren, there is a necessity for chemical fertilizers; but if it be capable of producing some one of the many varieties of green crops, it is only necessary to repeatedly plough them under to bring the soil to a fertile state.

Of all lands, there are not a large amount of sand are the most easily tilled. A fine sand will plough more in a day of a soil containing a great deal of sand, and with less horse power, than of a clay or loam. Again, there are thousands of acres of such soils lying waste and held at very low rates. We know of enough such land in the South, which if properly cultivated, could double the cotton crop, and there it has near the greater portion the marl and mud to fertilize it. There are in New-England, even, thousands of such soils now almost or entirely useless, which can be brought into the highest state of fertility. Nothing has ever been created, nothing has ever been allowed to live, without some good end, without some purpose. Those sand fields, apparently barren, can be made fertile and yield a return richer for the amount of labor expended, than many lands originally called fertile. But to do this requires thought and labor. We have endeavored to indicate our belief of the best and cheapest course, which is, in brief, the growth of a green crop and ploughing it under, and in company with the green crop the use

of some alkaline fertilizer, unleached ashes, containing carbonate of potash, sulphate of potash, commerce, or nitrate of soda. At the same time it must be remembered that a purely sandy soil seldom retains any special manure beyond a year, and that it is only by repeated green crops that such a soil can be made good with at least the usual permanence of soils. Yet it is possible to make such a soil equally as valuable by the course suggested, as one which nature has fertilized by the leaf droppings of repeated ages.—N. Y. Tribune.

Wheat Culture.

The importance of selecting pure seed should not be overlooked. The large and well-developed kernels should only be selected. Such wheat should weigh nearer sixty-five than sixty pounds when measured in an accurate-gauged half-bushel. The heavy kernels may be separated from the others by means of an improved fanning-mill; or, where one is not to be had, by taking a small hand-scoop, holding a quart perhaps, and throwing it against a strong breeze nearly to the opposite end of your threshing floor; the heaviest grains suitable for sowing will accumulate near the end from which it is thrown. No further preparation of the seed is usually desired. The following spring, as soon as the ground becomes sufficiently dry, the roller should be brought into requisition. Then in a week or ten days the field should be harrowed with a light harrow. The Thomas smoothing harrow is the best for that purpose. Then sow broadcast from fifty to 100 pounds of gypsum to the acre. To this could be added, with great benefit, double the quantity of unleached wood ashes. No farmer can afford to sell the latter for twenty-five cents per bushel.

Mr. Wm H Gibson, an enterprising young farmer in one of the best wheat-growing neighborhoods in Madison County, Illinois, in a recent address before the Farmers' Club Association in that county, made the following interesting statement: "The average price of wheat, corn and hay for twenty-two years in St. Louis has been for wheat, \$1.23; corn 60 cents; and for hay \$19.66 per ton." In making an estimate on the profits of wheat culture, he estimated land at \$60 per acre, of which the average yield of wheat was 15 bushels; corn 45; oats 40; and of hay 14 tons to the acre. Interest 6 per cent, or \$3.60 per acre; taxes about 50 cents per acre; interest on wear and tear of machinery about 20 per cent. on first cost, which is about 70 cents per acre for reaper and mower, 40 cents for drill, and 5 cents per acre for the ploughs, &c.

Table with 2 columns: Item and Cost. Items include Ploughing, Harrowing, Sowing, Seeding, Rent, Taxes, Harvesting, Stacking, Threshing, and Total. Total cost is \$29.45.

This estimate undoubtedly approximates very closely to the actual cost of the production of wheat in the older settled sections of the country. Estimates on raw prairie or the second year from the sod might show a still more profitable result. He says it must be borne in mind that the above figures provide for the payment of taxes, and a fair interest on money invested, so that what is obtained in price above the cost is actual profit. We shall be pleased to have our readers imitate the above example in estimating the actual cost of production. To this it would be well to add the yearly increase in the market value of the land.—Colman's Rural World.

Underdraining in Scotland.

In the British House of Lords, a request was submitted by Lord Napier that the government in collecting the agricultural statistics of Scotland would hereafter introduce into the returns a schedule of "the number of acres of land now under cultivation, which would be susceptible of remunerative improvement by underground drainage," and another of the number of acres "now classed as heath or mountain

lands, susceptible of profitable reclamation and improvement in connection with underground drainage"—supporting his request in an argument of considerable length. A reply was made by the Duke of Argyll, on the part of the government, the main point of which seems to have been that the purpose of such statistics is the "collection of facts and not of opinions," and he thought even if it were possible to obtain accurate returns on the points referred to, there might be question as to their being of any great practical value. The North British Agriculturist remarks:

"There is no doubt that nearly the whole of the land now under cultivation would be greatly improved by a system of thorough drainage, and which, if carried out in an efficient manner, would prove highly remunerative. As regards the extent of heath and mountain land susceptible of profitable reclamation and improvement with underground drainage, opinion necessarily varies very considerably; for in connection with this question there is the important one of climate, which includes altitude and exposure. Of course, Lord Napier, familiar with the agriculture of one of the most fertile Presidencies of India, may over-estimate what capital, skill, and perseverance are capable of effecting in Scotland, but the inhabitants of the United Kingdom are under a great obligation to his lordship for bringing the matter under the notice of the government. Presumably, the subject will not be allowed to rest without being further inquired into. In the mean time we invite the attention of agriculturists to the subject, in the full expectation that it will at no distant date be earnestly taken up.—Country Gentleman.

Old Pastures.

That excellent farmer, George Geddes, of the State of New York, falls foul of a certain agricultural journal for insisting on the wisdom of the oft repeated injunction to stock very light, so that much of the grass may be left to rot on the ground. He says:—

"The truth is that this is a very great waste; and on the old pastures, besides the waste, there is irreparable injury to the best bottom faceted grass, which, though ignorantly despised in America, is in reality far superior for feeding, and is much less exhausting to the soil than in English pastures, and the mowings likewise, continue centuries in the highest state of fertility. In America, the coarse, tall grasses suck the soil, and their influence altogether ruins any prospect of permanency, and misleads the public mind in all respects relative to grass lands.

The Kentucky blue grass pastures confirm the argument relative to the ban of the plow on natural grass, but nevertheless the plow continues to devastate whole districts. There is a foolish notion that a good old pasture will not keep so many animals as a new one, the error occurring in consequence of there being no good old pasture to graze, and there never will be good pastures unless there is good grazing, i.e., a gnawing down of all the coarse varieties, so that the thick-set bottom grass can hold its own; and thus thick, fine-fibred herbage will fatten better than the tall grasses, and will throw up in the course of a year more food for stock than the thinly growing long grasses, which ought not to monopolize the soil, and to keep which the general opinion is that half of it should be left uncutten to rot and nourish the roots through winter. Gardeners, and all keepers of grass-plots and lawns, have found out the error of shade in summer, for they shear off with the mowers every week, and so far prove the mistake of the contrary course."

To Destroy Joint Grass.

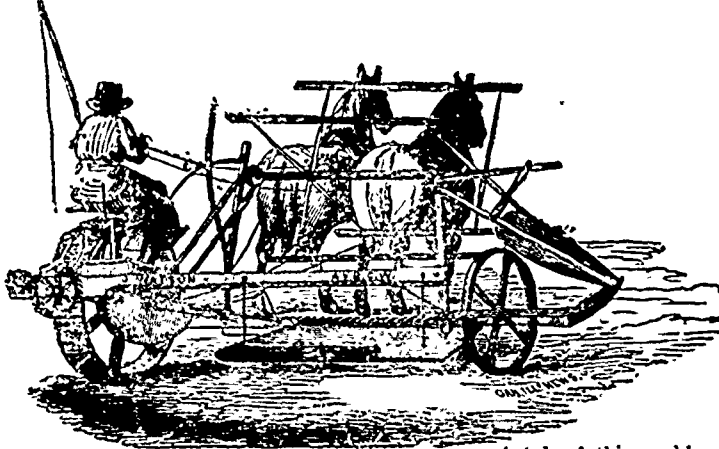
Joint grass is often troublesome in the cultivation of corn and tobacco. The strong roots send forth new shoots each spring, and not only exhaust the soil, but overrun the crops. On a farm recently purchased which was covered with joint grass, I put sheep early in the season, soon as the grass started, after which I ploughed the land to the depth of three or four inches, as far as the fibres reached. I then thoroughly dragged the ground till the light roots covered the surface, and again the sheep were turned on the fields. In a short time every vestige of the roots were destroyed, and the sheep had enriched the land, increasing its value 14 per cent. Four brine upon a few of the roots once or twice if the sheep do not eat them at first. White daisies, thistles, artichokes, &c., are effectually destroyed by constant and close grazing, commencing in the early spring.—Rural New Yorker.

Agricultural Implements.

Tedders. (Continued).

The English Tedder.

In the present number we furnish an illustration of one of the most popular of English Tedders, "Howard's Patent," an almost perfect implement of its class, and one which combines in itself all the various improvements which experience has suggested for many years.



The fork-barrels are so arranged that clearing is all but impossible. The forks are mounted in sets of three, and placed in a zig-zag position, an arrangement which equalizes and more perfectly separates and distributes the crop.

The usual method of reversing the motion in double-action machines has hitherto been—either by loose sliding pinions by means of clutches on the fork-barrels, or by sliding the fork-barrels themselves—the last plan having the obvious disadvantage of altering the relative positions of the forks, and rendering the machine continually liable to clog. In the above implement the gearing is both strong and simple, and as the motion can be changed in an instant to the backward or forward action, by a simple eccentric movement of the main axle, the disadvantages alluded to are entirely obviated. For adapting the machine to the nature of the crop, a similar eccentric movement is also used for raising or lowering the fork-barrels from or to the ground. When once set for the forward action, no further change is required to use it with the backward action. Every part of the machine likewise which is liable to strain, is made of wrought iron, so that it may safely be removed to any distance without fear of breakage, or without being taken to pieces.

It can also be fitted up with a pole instead of shafts, and may be purchased of almost any width.

Reaping Machines.

Nearly all the remarks already made in connection with mowers are equally applicable to reapers.

They are in nearly all respects similar in construction, with these main differences, that the cutting speed of the reaper is considerably slower than that of the mower, and that the former is provided with various attachments for the delivery of the grain.

The earlier form of reaping machines had a platform behind for holding the grain as it fell, and likewise a reel worked by the machine, causing the cut grain to fall smoothly and evenly upon this platform. When a sufficient quantity had been thus collected, it was swept off by a second man stationed on the hinder part of the platform, and afterwards bound into a sheaf.

The principal objectionable points to this machine were: 1st, the draught, and 2nd, the absolute necessity of a second man to attend to the raking. Various self-raking contrivances have been used to obviate this labor, several of which have been made

to do excellent work, and are now coming into general use.

One of the first successful self-raking attachments was that used by Seymour and Morgan, of Rockport, N. Y. It swept across the platform in the arc of a circle, delivering the gavel at the side of the machine. The ordinary reel was used with these machines; but the objection to them was that the grain was seized for throwing off at a point behind the cutters.

An improvement was shortly afterwards introduced in the shape of reel-rakes, which struck the grain forward of the cutters. A series of sweeps or beaters were employed, combined with one or more rakes, the gavel being delivered from the platform at each circuit of the rake. At first, the horizontal motion of these arms prevented the driver from riding on the machine.

The next improvement therefore caused the rakes, after passing the platform, to rise in a nearly vertical position, thus passing the driver freely. The following cut represents the latest

style of this machine, which appears to be a general favorite:—

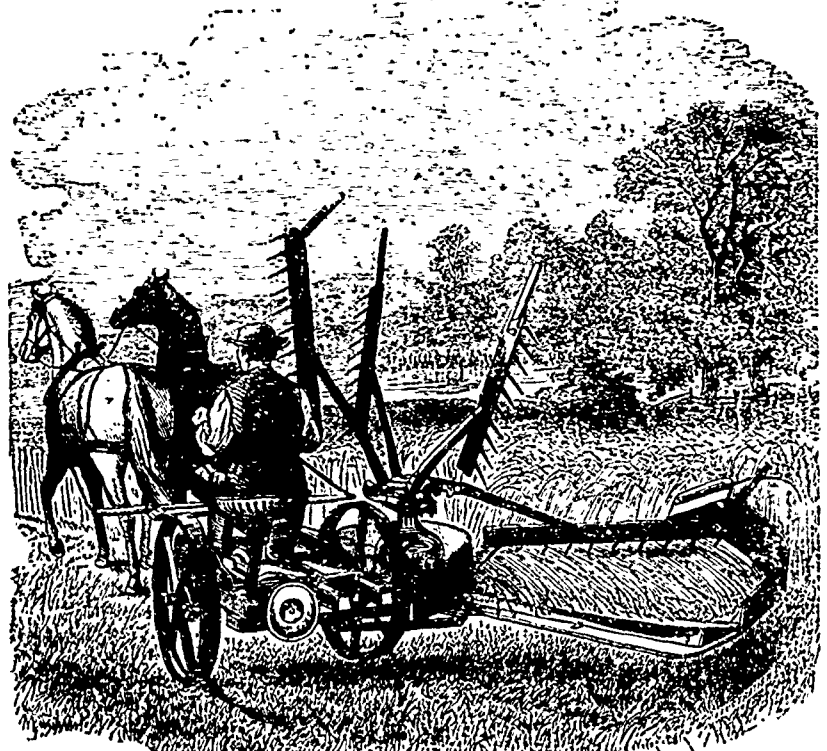
rakes employed at a time. Others are furnished with rake-heads for each of the arms, which are so arranged that they dip low into the grain, forward of the cutters, and afterwards rise in passing over the platform. To discharge the grain in this case, the driver uses a latch-cord and lever, so that the path in which the rake travels is changed by opening a switch or gate, permitting one of the rakes to pass low enough to sweep the platform.

The dropper is a simple contrivance, consisting of a light slatted platform which holds the gavel until it is large enough, and then suddenly drops at the will of the driver, who operates it by means of an attachment which he works by his foot. The dropper is a great favorite with many farmers, as the grain drops immediately behind the machine, and thus the binders are kept up to their work.

Several machines for binding grain have been invented, possessing considerable merit, but so far, they do not appear to be adapted to general use. One of the principal of these is "Marsh's Harvester," which is so constructed that two men can bind as fast as the machine cuts. The binders stand on a small platform with a guard, and the cut grain is carried up by an endless apron to a platform where each man alternately makes his band and receives and binds his sheaf.

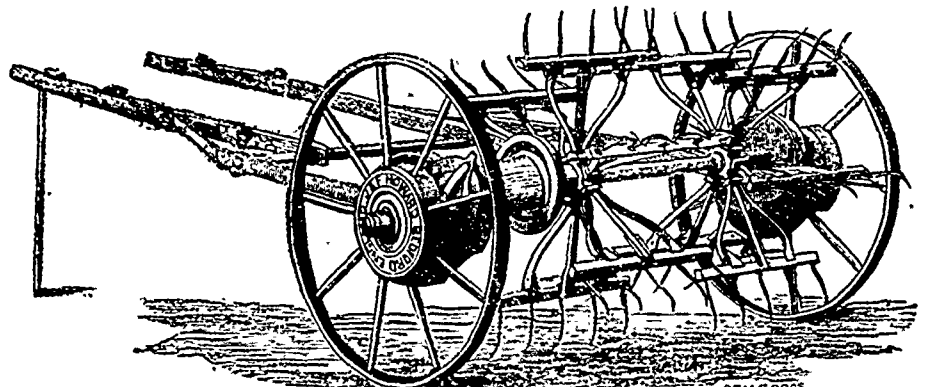
"Headers" are reaping machines used for cutting the heads only off wheat, leaving most of the straw standing.

They are usually driven by four horses, and are



There are various modifications of this class of rakes, made by different inventors. Some have beaters and rakes combined, and deliver one or more gavels at each revolution, according to the number of

thrust forward, ahead of them. A waggon runs alongside to take the heads as they are cut. Headers are used only on very extensive wheat areas, and a difference of opinion exists as to their real value.



THE ENGLISH TEDDER.

SCALE DRAWS

Agricultural Chemistry.

Manures.

The very great importance of the subject which stands at the head of this article renders it indispensable that the student of scientific agriculture should bestow upon it his most earnest attention in order to understand it thoroughly and appreciate it fully.

The term manure is used by scientific writers to indicate any substance containing plant-food of any kind, and in any form which may be added to land to increase its fertility. Now, it may be laid down as a principle, the truth of which has been shown by universal experience in all ages, that no soil will yield remunerative crops for an indefinite period without the addition of manure. This follows from what we have already said of the relations of plants to the soil, but in order that it may be clearly understood, it will be advisable to repeat something of what we have already said.

We all know that, occasionally, by volcanic action or by the agency of coral insects, new islands rear themselves above the surface of the ocean, and we also know that although when first upheaved they consist of only bare and barren rock, yet, in the course of a few years, they become covered by vegetation which is sometimes of a luxuriant character. How is this brought about?

Let us take the case of a volcanic island. As soon as it has been elevated above the waves it is exposed to the winds and to the rain, and by their agency a slight disintegration takes place on the surface of the rock, technically known as weathering. The face of the rock affords attachment to various kinds of lichens and similar humble forms of vegetation, the germs of which are wafted to the island by the wind. These run their course and then decay; atmospheric influences continue to cause the surface of the rock to crumble away. The products of this disintegration, together with the decaying vegetable matter derived from the lichens, are washed by the rains down from the more exposed parts of the rocks to the lower and more sheltered, and thus the hollows and crevices of the island become filled up with soil. Then the seeds of plants of a higher organization are washed ashore by the sea, or are carried to the island by birds, and these, falling into various hollows or crevices filled with soil, germinate and take root.

The disintegration of the rock goes on, and the various plants that have now obtained a lodging on the island assist in forming at length a tolerably deep layer of fertile soil. This is an example, on a small scale, of the way in which soils are formed all over the world.

Two points are especially worthy of notice here. The process is an extremely gradual one; and a most important element in it is the decay of the plants in the place where they grew. By this means they restore to the soil all they took from it, and much that they took from the air in addition. In process of time the superficial portion of the island will consist of three layers.

1. The rock (say lava or trap), of which the island is composed.

2. The subsoil, consisting of the disintegrated rock, and containing siliceous sand, clay, lime, potash, soda, magnesia, oxide of iron, &c., derived from the felspar and hornblende of which the rock is composed.

3. The soil, consisting of the same materials as the subsoil, but much more loose in texture, and more finely divided, and containing, in addition, a large quantity of decaying vegetable matter, as well as much inorganic matter derived from plants that have entirely decomposed, leaving their ashes behind. It is upon this last and most superficial layer that the immediate value of the soil for agricultural purposes depends. So long as vegetation is undisturbed there will be no deterioration in the character or

capabilities of the soil. The prairies of the West have for ages supported, year after year, a luxuriant growth of grass with no diminution in their fertility. Each year the growing grass has drawn from the soil, so much of ash ingredients, and so much carbon, hydrogen, oxygen and nitrogen from the air. Each year the rotting grass has given back to the soil and to the air, all that it received from them. To the soil all the ash ingredients, as well as much organic matter, are returned. The organic matter in the soil is slowly decomposing and returning to the air whence it came, but fresh vegetable material is added, as crop after crop of grass withers and rots, which, at least prevents the quantity present in the soil from decreasing. Each year, also, the ashing elements which form an indispensable part of plant-food are brought up from the lower parts of the soil by the roots of the plants, and then, when the plants decay, scattered in a finely divided condition, excellently suited for re-absorption on the surface of the soil. Every particle of the matter which the grass derived from the soil is thus returned to it, except that which is eaten by animals, and that ultimately reaches the soil just as surely. A large part is returned in the droppings, and all that is not so returned is given up when the animal in question dies, or if it is eaten by a carnivorous animal, when that carnivorous animal dies. When these very lands are brought into cultivation the case is very different. Suppose they are sown with wheat. Every hundred weight of wheat that is taken from the field represents about 3½ lbs of ash-ingredients removed from the soil. When the soil is rich in these ingredients the quantity taken away by one crop will not make any appreciable difference in the fertility of the soil, but in the course of a century it may be sufficient to reduce a fruitful land to a wilderness; and unfortunately this is not by any means a matter of fancy or theory. It is a misfortune that has occurred many a time; that is going on in too many places at this very moment. Whenever a field is made to grow crops year after year, and these crops are removed without any means being made use of to restore to the soil the elements of fertility that are removed with the crops, that field will inevitably cease, sooner or later, to yield remunerative crops. There are many places where the soil was once fertile as a garden, and where the climate is all that can be desired, that have been ruined by this disastrous system.

There are many ways in which this unhappy result may be retarded; and one of the most important of these is, the rotation of crops; but these various expedients, although of great value when joined with the judicious employment of manure, are, without this, merely putting off the evil day, and none of them can prevent the land from being sooner or later exhausted.

Plants require a certain proportion of all the ingredients that build up their tissue—organic and inorganic. The greater quantity of these materials the soil contains in a condition suitable to be appropriated by the plants, the larger is the crop that it will sustain. Since all are necessary, it is clear that the fertility of the land depends upon that constituent of plant-food which is present in the smallest relative amount. For instance, if a soil contains an ample supply of everything necessary for the growth of wheat except phosphoric acid, so long as this is withheld wheat cannot be raised on it. In order to obtain a crop of wheat on such a soil, phosphoric acid will have to be added to it, and its power of supporting successive crops of wheat will be exactly proportionate to the amount of phosphoric acid added to it. So it is with all soils. The only way by which they can be made to yield remunerative crops for an indefinite period is, by adding to the soil as much of each constituent of plant-food as the crops take away. This is a principle which must never for a moment be lost sight of. Its neglect will assuredly in the

long run be followed by a decrease in the fertility of the land. Not, we must recollect, an immediate decrease to an extent sufficient to attract our attention, but a decrease not the less sure because in many cases it is so slow. The various manures in use among farmers are intended to supply to the soil the elements of plant-food which have been taken from it by crops in this way, or in which it is naturally deficient.

On this subject Baron Liebig made the following excellent remarks:—

"In the produce of his field the farmer actually sells his land; he sells in his crops, certain elements of the atmosphere, which come of themselves to his soil, and with them certain constituents of the ground, which are his property, and which have served to form out of the atmospheric elements the body of the plant, being themselves component parts of that body. In alienating the crops of his field he robs the land of the conditions required for their reproduction. Such a system of husbandry may properly be called a system of spoilation.

"The constituents of the soil are the farmer's capital; the atmospheric nutritive substances are the interest of his capital; with the former he produces the latter. In selling the produce, he alienates part of his capital and the interest; in restoring the constituents of the soil to the ground he retains his capital."

In a future article we shall investigate the different methods by which this result may be obtained.

Common Salt in its Agricultural Relations.

Common salt is an article of every-day consumption, and is more largely on the farm than elsewhere. The injury done by using impure salt in salting bacon, and other meat, butter, cheese, and other provisions, amounts to millions every year; while nothing is done to correct the evil. This results partly from the general lack of intelligence in regard to the nature and properties of both pure and impure salt; and partly from the fact that, what is everybody's business is nobody's business. A few manufacturers of impure and damaging salt, are given a monopoly for selfish and speculating purposes, under the pretence that, it is right and proper to make the people pay ten dollars into their pockets, in order to place one dollar into the national treasury! Nothing but profound apathy and ignorance would tolerate a wrong of this kind, in favor of impure salt that goes into the bread of millions and tens of millions of freemen, to fatten an impure monopoly, and breed corruption in the heart of legislation. Salt-springs are not to be found everywhere; and, by imposing a tax on all imported salt, manufacturers are able to sell their natural brine boiled down which yields a compound of lime, magnesia and soda-salts, that attracts moisture from the air and dissolves in wet weather, and spoils meat in the end instead of properly curing it. The salts of lime and magnesia do the mischief. They ought to be wholly separated; but that costs labor, which is money; and the monopolists make salt, not to preserve meat, butter and cheese, but to acquire over-grown fortunes at the expense of the public health and comfort. In the early part of this century the writer made butter to pry for Onondaga salt, receiving from the salt-pans two bushels of salt for one pound of butter. Now, he is still making butter, and gives five pounds of good butter for a bushel of Virginia salt, that is fit only for salting stock, and for the dung heap. Pure salt never dissolves in the air, nor wets the sack in which it is kept. It is rare that one sees a sack of Virginia salt that does not show the presence of deliquescent salts, which are an impurity, and draw moisture from the atmosphere.

Every fifty-nine pounds of pure salt contains thirty-six of chlorine, and twenty-three of sodium; and one hundred pounds of water will dissolve thirty-seven pounds of salt. Common salt decomposes most carbonate of ammonia (a volatile salt in a manure heap) and forms sal-ammoniac and carbonate of soda. This fixes the ammonia; that is, prevents its escape into the air as a gas. Nitric acid also decomposes common salt. Professor Low, (Professor of Agriculture in the University of Edinburgh) says:

"The most advantageous manner of applying salt as a manure is to mix it with stable manures. In parts of England where rock-salt is found, farmers mix it largely with the dung of farm-yards, and the materials of their compost heaps."

Professor Way, of the Royal Agricultural College, has proved that phosphate of lime, which is nearly insoluble in pure water, "is soluble, to a considerable extent, in a solution of salt." He has found the same is true of silicate of ammonia; and in this way salt serves to convey dissolved flint into the stems of

wheat and other cereals, and make a hard, glass-like straw that keeps the plants firm and erect, and opposes the attack of rust. A lack of silica or flint in corn-stalks, wheat and oats, causes them to fall very easily to the ground; and salt, and fertilizer, is one of the best preventive. Lard-stock, some distance from the water, receive less salt than their best health and growth demand. Give hogs and other stock little at a time, and often.—*Plantation.*

Practical Uses of Science.

"Practical men" frequently ask the question, "What is the use of scientific study?" They have accustomed themselves to regard these far-reaching investigations among the heavenly bodies, which astronomers are every year making more extensive and minute, those exacting analytical processes of the chemists, those delvings among the igneous and the aqueous rocks, and the fossils which the geologists are carrying on, as having no real bearing upon material interests. The *Scientific American* collates a few facts showing what has actually been realized from some of the apparently most recent researches, which will go far to cause these "practical men" to reconsider their judgment:

"Newton's analysis of light by passing a beam through a prism was a discovery of no apparent value at the time it was made. The spectrum was very beautiful to look upon, but few persons could understand or appreciate it. No one could have anticipated that this was the germ of a method which would gradually lead to the discovery of new metals on our earth; to a study of the atmosphere of the sun and planets; that minute quantities of substance would be detected by it in mineral waters and rocks; that steel would be manufactured by watching the light produced by burning gases; that an instrument called the spectroscope would become one of our most important adjuncts in the study of astronomy, in technical researches, in the detection of new bodies. And thus the ray of light passed through a hole in a shutter becomes, in the contemplation of future men of science, the starting point in a great array of discoveries."

Another discovery, of apparently not the slightest practical importance, was that of polarized light. This has been developed, till now "the value of glass for optical instruments, the extent to which glass has been annealed, the testing of stone jewels, and the detection of paste diamonds, are accomplished by the use of a polarizing apparatus. But the most important application of the power of rotation possessed by different substances is seen in the apparatus employed to determine the quantity of sugar contained in any solution. The crude sugar of commerce is bought and sold on a polarized test."

"Hans Christian Oersted observed the deflection of the needle produced by an electro-magnet, and the needle telegraph was the natural growth of the observation; and afterward, by further research, we arrive at the telegraph in its present form. A little deposit of copper on one of the poles of a battery, when seen by De la Rive and Jacobi, soon develops into electro-plating and galvanoplastic operations. Gold, Silver, copper, nickel, and other metals, thrown down from solutions by battery currents, offer an occupation to a large number of persons, and enable publishers of illustrated papers to furnish their readers with prints for electrotype plates in a manner far superior to what was formerly accomplished in this line."

"Professor Tindall's observations on haze and dust have for their practical result improvements in ventilation, and the discovery of the precautions to be observed to ensure good health."

"Pasteur's researches on the germs of fermentation have revolutionized our former notions on this subject. The same theory carried further in its consequences points out the probable origin of epidemic diseases, and thus indicates the best remedies to be applied."

Faraday discovered a substance called benzole, which was exceedingly worthless, except as a curiosity. But out of this substance has sprung a long line of important industries. From it we have the most magnificent colors; we prepare sweet perfumes; we concentrate the light of illuminating gas; we dissolve resins, and make varnish."

When glycerine was first discovered, no use was found for it. Now it is in demand in immense quantities, for the most diversified uses—for making soap, in medicine, in perfumery and confectionery, and as an essential ingredient in the most powerful explosive compounds."

So gutta-serena was first brought to the United States as a curiosity. Without it, we could not have ocean telegraphy. The list of practical adaptations of "usefulness" discoveries might be indefinitely extended.—*Exchange.*

Veterinary Department.

Firing or Blistering in Severe Sprain of Ligaments.

Breaking down is an accident to which hunters are especially liable. Readers cannot claim absolute exemption from the disaster; but, from the nature of their work, they enjoy advantages which horses employed in field sports do not share.

The term "broken down" refers to various degrees of injury to ligaments and tendons of the anterior extremities, including the flexor tendon and the suspensory ligament, all of which are situated at the posterior part of the leg between the knee and the foot, and are included in the expression, "back sinews." In a state of rest the tendons and ligaments at the posterior part of the leg may be said to counteract the tendency of the animal's weight to cause extreme extension of the bones below the fetlock joint. The flexor tendons, when acted on by the muscles to which they are attached, bend the foot and the pastern bones towards the back of the leg; and in their passing condition they naturally resist the extending forces both of the extensor muscles and the superincumbent pressure of the animal's body on the fetlock joint. The suspensory ligament has no active function at all; it arises from the posterior and upper part of the cannon or shank bone, runs down the channel between the small splint bones, and divides just above the fetlock joints into two parts, one which is attached to the side of each floating bone (scaphoids) of the joint, spreading over the pasterns down to the bones of the foot. The course of the ligament can be traced in a clean-limbed horse very distinctly down each side of the leg close to the posterior edge of the splint bones, and between them and the flexor tendons. Composed of dense fibrous tissue, elastic but inextensible, the ligament possesses immense restraining power in preserving the proper position of the fetlock joint and pasterns when the weight is thrown on these parts, as it is in ordinary movements, and to a more decided extent when the animal lands after a leap.

Deprived of the restraining action of the suspensory ligament and flexor tendon, the bones below the shank naturally, from their position, yield to the slightest pressure, and become so far extended that the articular surface of the cannon bone is brought in contact with the ground. Even the tonic contractility of the extensor muscles suffices to pull the foot and pastern bones upwards and forwards without the influence of the animal's weight, when the suspensory ligament is divided; it is clear, therefore, that the chief function of the ligament is to resist the tendency to undue extension of the plantar bones on the cannon bone. Every time that the weight of the body is thrown suddenly on the plantar surface this tendency to extension is apparent; and, in order to counteract it, the suspensory ligament is called upon to exert its resistant force in aid of the flexor muscles. Under ordinary circumstances the dense ligamentous structure is equal to the emergency, and supports the strain without injury; but occasionally, without any apparent alteration in the external conditions—that is to say, without any additional force being applied—the structure yields beyond the limits of its elasticity, and a "sprain" is the result. Inflammation follows, exudation of plastic materials occasions swelling or thickening of the ligamentary cord, and ultimately the parts are left in a condition as nearly as possible allied to the normal state, save that the adventitious deposit of fibrous structure impairs the due proportions of the ligament.

At this point the question of treatment arises; up to this there is no difficulty. While inflammation exists, and the progress of exudation is actively in progress, it is agreed that repressive measures are necessary; purgative medicines, local and general

bleeding, fomentations to the heated parts, followed by cold lotions when the pain has subsided, are the means which experience has proved to be efficacious in dealing with the primary results of the injury. But after all active disease has been cured, there remains the thickening of the skin and the enlarged ligament, with a certain weakness or want of resistant power, and to correct these defects the use of the hot iron has been advocated from the earliest times of veterinary surgery; and undoubtedly after deep firing, horses have sustained severe work in the hunting field, notwithstanding that they were to all appearance hopelessly broken down during the previous season. Owing to the many successes gained apparently by the actual cautery in these cases, firing has assumed a position in the estimation of practical men from which it will not be easily dislodged; but it is nevertheless perfectly evident that the arguments in its favor are based on the principle *post hoc, propter hoc*; and so long as no other remedy is used in severe cases of sprain of tendon and ligament, the evidence is all on one side. But a few practitioners have had the professional hardihood to abandon the use of the firing iron altogether, and their experience has tended to confirm them in their determination to adopt less barbarous modes of treatment.

Bearing in mind that the primary action of the cautery is that of a counter-irritant, and that the long rest which follows its use is in itself powerfully restorative, they have tried blistering instead of firing, and with equally satisfactory results.

A step further has been taken by some who had faith in the effects of rest and cold lotions in repairing the damage done by a severe sprain, and they have obtained successful results by the use of cold water persistently applied during a long period of abstinence from active service. In one case of so-called break-down, we had an opportunity of testing this treatment, with unexpected consequences. The horse on which the experiment was tried had suffered from severe sprain of the suspensory ligament and flexor tendons of one fore leg; and after the acute symptoms of inflammation had been removed by the usual treatment it was proposed to complete the cure by firing. The owner was, however, persuaded to leave the animal to nature for a time, and excepting that cold water was freely used, no treatment was attempted. The leg became perfectly firm, and the animal went well. He was hunted during the following season, and towards its close again broke down, as it was prophesied he would—but in the other leg, which was not referred to in the prediction. In spite, however, of this testimony in favor of rest and cold water, both legs were fired in obedience to the prevailing prejudice in favor of the operation, and the animal has remained sound.

It may be considered as quite certain that the use of the firing iron will not be discontinued so long as horses suffer from such desperate injuries as rupture of ligament and tendon. There can be no question that the operation is often performed where there is absolutely no occasion for it. So severe a remedy should at least be reserved for the most desperate cases.—*The Field.*

Harness, and How to Fit it to Horses.

The collar is the first thing of importance. That large thing that will admit a man's arm between it and the neck of the horse, is very unfit for a horse to work in. The collar should fit as neatly and as closely to the neck as a pair of gloves. Then, if it is soft and supple, as it should be, it will seldom gall the skin, if the hames are properly made and correctly adjusted. The hames should fit the collar well, and should not be too far apart at the top, as they often are. The staples which hold the side-straps and traces are almost always attached too far up from the lower ends. A horse cannot draw well when the traces are attached near the top of his neck. If a horse is apt to gall near the top of his neck, take out the staples and put them lower in the hames. If the backbands are just right for a cart, they will be too short when ploughing, and will gall the backs of the horses.

Some horses have a very tender skin, and the harness will sometimes gall them cruelly, in defiance of all means to prevent it. But many times the true cause is attributable to a bad collar, bad harness, or to a good harness improperly fitted to the animal. When a harness or yoke of bows do not fit properly, and the skin is liable to be galled, bathe those parts before they are galled with cold water, until the outside skin appears quite soft, and then bathe these parts with a strong decoction of white oak bark. Let this be done every day and the skin will soon become much harder and tougher than it usually is. A little care in preventing an ill is far better than much labor and skill in curing it, or in endeavoring to obviate its injurious effects.

Start the Cultivator.

We think the frequent use of the horse cultivator among corn, potatoes, and mangolds a means of economizing labor and keeping down the weeds. It is a kind of work that is rapidly performed, keeps the ground mellow, destroys the weeds between the rows as soon as they start, and saves a great deal of weeding that becomes necessary if the horse cultivator is not used. Make calculations, therefore, to keep it running through the cultivated acres as often as possible. The more work the horse can do, the less hand labor, and labor, now-a-days, is the great item of expense; and hence the necessity of making it as effective and profitable as possible.—*West. Ploughman.*

Transplanting Cabbage Plants.

I notice the article on transplanting cabbage, &c., on p. 218 of the last impression of the CANADA FARMER. Permit me to observe that I invariably pursued the plan therein recommended, but that this year, for the first time, I used carbolic acid soap-suds, instead of plain water, and the result has been that, although "grubs," as they are commonly called, were far more numerous and destructive than I ever recollect their being in previous years, owing, probably, to the long-continued drought, I have not lost one single plant so treated. The plants, however, were greatly infested with the "flea-beetle." The best remedy for whose attacks is plaster sprinkled on the leaves when wet.

VINCENT CLEMENT.

NORTH DORR, July 14, 1873.

THE FRUIT GARDEN.

Old Strawberry Beds.

The strawberry season will soon be over, and the question, "What shall be done with the old beds?" will be in order. We are aware that conflicting answers will be given to the question by men of good judgment and long experience.

In the first place we had better state what we mean by old strawberry beds. We mean those that have borne one or more full crops. A bed set out the past spring, we would call a new bed, and one set out last autumn we would place in the same class, and those planted a year ago last spring, or earlier, we would call old beds.

Many intelligent and successful growers of strawberries for market, raise but one crop from a plantation, and then plow it under. There is no doubt that where strawberries are transplanted in April or May that the yield in between thirteen and fourteen months will be their best one whether we regard size or quantity. If the bed is allowed to remain longer, the labor of cleaning it will be considerable, and then it will bear a lighter crop of smaller berries the next year, and continue to diminish every succeeding year.

On the other hand, if we set out a new plantation every year, and plow under the one that has borne one crop, we are obliged to cultivate the land about fifteen months before realizing any return for the capital invested in plants, soil and labor. Some, we are aware, raise a crop the first year between the rows of strawberries, but that necessitates cultivating by hand entirely, and can only be defended where land is very dear, and then the soil should be made very rich so that the strawberry plants shall not be deprived of necessary nutrition.

After the crop of berries has been gathered, another crop of several kinds of vegetables, as cabbage, cucumbers for pickles, celery, turnips, or sowed corn can be grown up on the ground, or plants, for the next spring's plantation, or for market can be grown. It is not necessary that the ground for two years should be entirely devoted to one crop of fruit.

But then, it is sometimes impossible to find new ground every year for strawberries, and in consequence necessity may compel us to make the most possible out of the old plantation. In that case, a very good way is to go over the bed with a scythe, mowing down grass, weeds, and vines. Then rake it off, and you have a good starting point to begin cultivation. With a small corn plow, turn a furrow from the rows each way, making a ridge between them. It will do no harm to run the plow pretty close to the row of plants, even cutting off many of the side-roots. The old roots are of but little service after the berries are ripe. With the new growth of leaves, new roots will start out near the crown, and then, if they find a fresh mellow soil to work in, they will show their appreciation of it by their luxuriant growth.

This process will leave but a narrow strip to hoe and weed, and then the bed will be thoroughly renovated. Of course it is not absolutely essential that the vines should be mowed, and should the weather be very dry, perhaps it would be advisable to let them remain to shade the roots; but should the weather be tolerably moist, we are confident, from our own observations, that mowing will increase the new growth.

After the rows of vines have been cleaned out, the ridge left between the rows should be levelled down with a cultivator, and should the weeds be very thick, they should be raked out upon the surface with the pronged hoe, and left exposed to the sun.

A top-dressing of fine barn-yard manure would undoubtedly be beneficial, and a dusting of plaster on many kinds of soil would be good. If any of the commercial fertilizers could be obtained tolerably pure, at reasonable rates, it would probably be a good investment to apply a light dressing. By means of these fertilizers a good growth of vine could be obtained for the protection of the roots in winter.

In looking over our article, we are satisfied that we did not say enough in favor of the one crop way of raising strawberries. Its greatest recommendation is the superior size of the berries of the first crop. We think that every experienced strawberry grower will admit that berries of the first crop will average much larger—perhaps under ordinary cultivation twice as large—as those of subsequent crops. The great advantage that size affords in marketing berries is not fully appreciated. We have known some pretty bad gluts in the market, when a small or medium sized strawberry could hardly be sold at any price, but we do not recollect the time when large strawberries would not sell at very fair rates.

In seasons when the demand is about equal to the supply, all sorts and sizes finding a ready sale, the difference in price between large and small is often just about the profit of the crop; that is, the crop of large berries would pay a net profit of two or three cents a quart, while the receipts from the small berries would just about cover expenses. The same principle holds true in small fruit-raising that does in farm crops: the per cent. of profit is so small that none but maximum crops pay. It costs less to raise a certain amount of produce on one acre than on two, and while 200 bushels of strawberries grown upon a single acre might afford a liberal remuneration to the grower, the same amount produced upon two or three acres might be a decided loss.—*American Rural Home.*

Newly Set Trees.

We offer a few suggestions to those who may have set young trees last autumn or this spring, not as new, but because the necessary care is apt to be overlooked or forgotten. There is a critical period late in spring or early in summer, when trees often suffer severely and sometimes fatally, for want of a little timely attention.

Trees set out last autumn are sometimes seriously injured by winds, which sway about the stem and form a hole in the earth by this motion. The air enters, comes in contact with the roots, and such trees frequently die. The remedy consists in throwing the earth away from the tree, applying fresh, mellow earth, pressing it down firmly enough to protect the young tree from the wind. Sometimes it may be necessary to throw up a mound of earth as an additional protection for a few weeks until it becomes established. Where the roots have been cut short in taking up, it may be necessary to secure the stem by means of an inclined stake, but staking is always to be avoided if possible. As a general rule, liable to exceptions, trees should never be so large when removed as to require staking; and if the roots have been carefully taken up and well spread out in transplanting, they will stand more securely. Sometimes it happens that a tree having a large top has retained a small set of roots, in which case the head must be freely cut back so as to render it lighter, and to equalize top and roots. But if the buds have already started, or are partly expanded, the cutting back must be omitted, as nothing checks a newly set tree more than pruning too late in spring.

Hardy trees, set out in autumn, would always do better than spring set trees, if properly treated, the earth having become well settled about the roots and an early start given them. But it often happens that all these advantages are lost by neglect. In addition to the injury already mentioned, from swaying about by the wind, the hard crust which forms during the several months they have stood, is a serious detriment, and care should be taken to break this crust, and to produce a fine mellow surface.

As hot weather approaches, all newly transplanted trees require mulching. In most cases, mellow earth forms the best mulch; and if a circle about the tree, several feet in diameter, is kept clean and well cultivated, the moisture in the soil will be retained, and a fine growth will be the result. An additional mulching will be necessary only on very dry soils, or in an unusually dry season. Young cherry trees form an exception, and they should always be mulched before the hot weather of summer. After having been well set out and commenced growing, the leaves often wither and the trees die under hot suns. Several inches of old straw or grass, spread timely under the tree, will save it. The mulching should never be omitted with cherry trees the first year.

Watering trees should never be employed except in extreme cases. The practice destroys many more trees than it saves. If they are well set and the earth kept mellow, they will not need it. A neighbor set out 30 cherry trees and watered 15. Those not watered all lived; a large number of the watered trees died, in consequence of the hard crust which the watering formed on the surface, while none reached the roots a foot below. If water is ever applied to a young tree, the surface earth should be first shoveled away, so that it may at once reach the roots, and the mellow earth then replaced. But even here the intermitting supply thus given is not as good as the uniform moisture preserved by keeping a mellow bed of earth.

Young trees, and especially young pear trees, sometimes remain dormant for several weeks after setting out, and then gradually wither and die. They may be easily restored if treated in time, by cutting the head back sufficiently, encasing it loosely with straw, and keeping the straw wet. Before the leaves expand, the stem and branches must be watered; after they expand, the water must be given to the roots, for if applied to them sooner, or before the leaves commence pumping through the stem, they will become water-soaked and rot. Therefore water the stem only, while the buds are yet closed—and not the roots.

The preceding suggestions, it will be observed, apply chiefly to trees where there has been defective management, or where the roots have been badly cut, or the trees allowed to become dry, or where they have been imperfectly set out, or where the soil is too hard or has been allowed to become so. Much trouble will be avoided by prevention, or by securing in the first place a good supply of roots in digging, and by setting out the trees in well prepared soil, and keeping it in good mellow condition through the summer. With such management, we have known young orchards of a thousand trees or more, not only set out without the loss of a tree, but all have grown vigorously and made successful plantations.—*Conn. Gentleman.*

New Raspberry—Ganargua Hybrid.

A few days since, we received an invitation to visit the grounds of Mr. Katkamier and see the new berry bearing; and always being ready to go a considerable distance to see a new fruit, that is promising, we readily complied, and on the tenth of July made a trip to Farmington for that purpose. We found the berries growing on a pretty strong, stony loam, and showing signs of having received good culture. A mulching of straw had undoubtedly mitigated, somewhat, the effects of the severe drouth, although one row left without mulch, was but little inferior to those with.

The canes are a dark purple, pretty thickly covered with rather weak spines, strong, vigorous, and apparently quite hardy. They had been cut back pretty short in the spring, and thrown up numerous very strong, thrifty fruit branches that were loaded with the heaviest crop of berries that we ever saw growing on yearlings or bushes of any age. Fruit very large, hemispherical, like the Doolittle, slightly approaching conical, dark crimson. Flesh very firm, juicy, mild sub-acid, with but few seeds,—excellent. Its season commenced with Davidson's Thornless, and will probably continue as long as any summer variety, as there are berries in every stage of growth, from blossom to the ripe fruit.

Judging from its appearance and quality, it will sell higher in market than the blackcaps, and higher than the Philadelphia, for it is larger, firmer, better and handsomer than the latter, but lower than the Franconia, Hudson River Antwerp, or Clark, because the bright red color of the Antwerps will be preferred; yet its hardness and productiveness will probably render it more profitable to grow. Of

course, our opinion of the berry's promise is based upon the supposition that it will succeed as well in other localities as in its native one. Its tendency to produce a heavy crop the second year is exceptional. Other varieties and species do not produce a full crop until the third year, but we should say that this yields its largest the second year. At any rate, the seedlings appear to have full as many berries upon them as two years old.—*See Purest Home.*

Moss Covered Apple Trees.

Mossy trees in an orchard, generally indicate too much moisture in the soil—there is that the soil needs drainage and the trees require liming. Give the ground under the trees a good top dressing of sand and ash, drain the ground thoroughly, scrape off the moss from the trees with a hoe, and wash trunks and large branches with strong soap-suds. But we should, perhaps, observe that while mossy trees generally indicate too much moisture, it is not always the case: for trees on sandy soils are often mossy; and soils are covered with the same species of moss. Moss, therefore, often indicates poverty of soil, or uncongential conditions in some way. It may be a want of moisture as well as too much. Stimulate the growth at any rate, as we have above suggested, whether the soil is dry or wet.

New Pear.

Burrer Danelsson Pear.—This Pear, which attracted much attention last season in Belgium, is thus remarked upon in the *Bulletin de l'Agriculture*:—"We consider the Burrer Danelsson the most valuable acquisition of the present generation, as it equals the finest October pears in quality, and is in perfect condition in February and March—a time when thoroughly melting fruits are not to be had. It has, moreover, another valuable quality, viz., that of keeping ripe in a fruit-room, without suffering any change, for four months, commencing from the beginning of December." The following description of this Pear is given by M. de Mortier, in the *Pamone Tournaiesienne*:—"Fruit of large size, oblong, slightly indented, truncate, and ribbed at the base, which has attenuated towards the top. Skin short, thick, yellow, not much sunk in the flesh. Flesh yellow, dotted and spotted with russet, sometimes slightly colored on the side next the sun. Flesh fine-grained, buttery, sweet, slightly aromatic, and very juicy. Quality unsurpassed."

We see it stated in North-western papers, that in some localities many apple-trees that have and blossomed are now dead.

MIXING FOR RASPBERRIES is almost a necessity if good, fair sized fruit is to be grown and the plants refreshed in vigor for the strength of the comes to produce the next year's crop. Moisture is essential for the raspberry, don't take us in saying the wet moisture that we mean wet, for the raspberry will not bear a wet foot, but it wants a cool, damp footing, void of any stagnant water, and the spreading of six inches deep of new mown grass is the best and cheapest manner of supplying it that we have ever practiced.

PREVENTION OF EATING OF THE FRUIT.—It very often happens that fine fruit, especially of pears and apples, is attacked by birds or insects as to make a wound, which, if left to itself, will cause the fruit to rot. It has been found that by cleaning out the place affected, and removing the dirt and disorganized and bruised matter, and filling up the cavity with plaster of Paris, further decay may be avoided, and the fruit become fit for use. A little spec may be worked out from under the edges of the skin, so that when the plaster is pressed inward it will keep its place. The object of the operation consequent upon this application is all that is necessary to prevent the progress of decay. This would, of course, be inexpedient in many cases; but when large and valuable apples and pears are involved, the trouble will be but trifling in comparison with the result accomplished.

THE FLOWER GARDEN.

Roses.

The rose is not a new beauty. It was cultivated, and loved, and sung by the poets centuries ago, but has been improved by crossing, as have most of our flowers, fruits, and vegetables. The rose likes a virgin soil, and the nearer the position of our rose-beds approximates to that of a greater will our success be likely to be. Hence decayed soils, and leaf-mold from the woods when it has been sweetened by the sun, are good fertilizers.

The old-fashioned way of cutting roses about the lawn is not the best way. They will, thus isolated is apt to be neglected, as flowers water in and chokes them, besides the effect is not equal to where they are grouped in a round, or oblong bed, highest in the centre.

Suppose that we decide to plant a bed of Hybrid Perpetuals. In the centre we would want a white rose, or a cluster of white roses, according to the size of the bed. Madame Alfred de Rougemont is one of the finest whites. Portland Blanche is another fine one. Next we could have a row of flesh color and light pink. Caroline de Saxe is one of the finest of the former, and Lyons of the latter. Auguste Mieroy pink, and pretty nearly correspond with this choice. The next row should be golden, pale rose or deep rose. Of this class, we have Madame Pavot, Victor Verdier, and Madame Victor Verdier. In the next row we could have rosy crimson, rosy blue, rosy carnine, and vermillion. Among those of these shades, Anne's Bisbach, General Washington, John Hopper, La Poise, M. L. Fernon, Maurice Larnaudin, and William Griffith rank the highest. On the outside we could have the deepest shades, as General Cameron, an Evelyn, Dr. Arnauld, Françoise Anna, Count of Ponthieu, General Jacqueminot, Jules Masselin, Prince of Vintimille, Marquis de Ponthieu, and Triomphe de l'Exposition would fill the outer ring.

We do not say that this order should be strictly adhered to, but we think the highest effect would be produced by having white in the centre, and gradually shading deeper to the circumference. All that we have named are first-class roses, and our readers may be assured that in selecting from them they will get no inferior race.—*See Purest Home.*

Balsams.

When well grown these are, perhaps, the choicest of all our tender annuals, and are thus best adapted for a conservatory decoration from July to September. They like a rich, open compost to grow in; the great danger made on the point during the period of active growth informs us, too, that liquid manure is a useful auxiliary to keep up vigor, and may be applied freely when the pots become full of roots; bottom heat must also be given while they are growing, and they like plenty of air during every stage of growth. The soil preferred is half-decayed turf, calmed clayey loam, horse droppings, half rotten, and rubbed through a half inch sieve, and bone-dust. The clayey loam is also suitable, and it acts as a drainage to the soil; in the absence of this, soft bricks broken to the size of Filberts may be used. The turfy loam may comprise rather over one-half the mixture, the dung and drainage material the other. A handful or two of bone-dust may be used or not, as it may be at hand. The seed should be sown in pan, in a hotbed, and the young plants potted singly as soon as they are an inch above-ground, otherwise they become unshapely and drawn. Each time the plants are shifted, lower the ball a little in the pots, so that the stems may be short and stout roots may be produced from the parts buried. If possible, keep them plunged in bottom heat, but near the glass, in a frame, the shades of which are tilted up a little night and day. Should they form flower-buds sooner than wanted, rub them off, and they will speedily be succeeded by another supply.—*P. S. in "Garden."*

Marchal Niel Rose under Glass.

What a glorious Rose this is when planted out in a rather cool house and allowed to develop itself! Two years ago I planted on a back wall, in a new house just erected, a plant had budded on a briar the previous summer. The situation was not particularly favorable for it, as it does better trained nearer the glass; but last year it made shoots, some ten feet long, which were laid in along the wall their full length, and now every eye has broken, and the plant is studded with bloom buds over the whole surface. A stronger plant of climbing Devonensis, planted at the same time, has not done near so well. One of the very best plants of Marchal Niel I ever saw was planted in an open-roofed orchard house (where the fruit trees were grown in pots), and it had rambled unpruned, or nearly so, all over the roof, but the foliage was not sufficiently dense in any part to injure the trees beneath, and in fact I was told a much larger return in profit was derived from Marchal than from the potted trees for which the house was originally built. There is an old tea-scented Rose called Morice, a strong, vigorous grower, and one of the best to plant under glass I have ever seen. Some years ago I had it in a lofty conservatory, trained up one of the pillars, and allowed it to ramble

about near the glass. We could at almost any time, either winter or summer, cut a beautiful bouquet of flowers from the old plant. In winter the flowers were almost a pure white, but in the day they gained the edges of the petals were tinged with pink. I have a plant of it on a south wall here, but in the open air the color is a beautiful blue-tinted pink. I cannot imagine a greater beauty amongst flowers than a house devoted to this Rose. Planted in a good border, allowed to develop themselves, they then assume their true character, which is much more the long, ascendant plants in them which we sometimes meet with in the garden, and when well treated in vigorous health, that lots of them can be seen in mid-wood, is not nearly so fine as when it is with a plants are grown under the favorable circumstances.—*See Purest Home.*

A Precocious Century Plant.

On the premises of Mr. Joseph Lay, between Twelfth and Thirtieth streets, is growing a young century plant of the month's growth, which has developed itself into a most remarkable specimen. The plant stands about five inches high, and is of itself a curiosity because of its disproportionate proportions. About three weeks ago the lady planted the germination of a small sprout on the plant, which has since grown with such remarkable rapidity that it now presents a stalk nearly three feet in height. This stalk is swelling forth in a good bulb, and from all appearances that it will in a few weeks reach the course of a few weeks. The plant has a most extraordinary development of germination in the opinion of a number of horticulturists of the State who have seen the plant. It is a popular delusion that century plants do not come to maturity in one hundred years, but modern investigations show that under favorable conditions they will soon in plants twenty years of age. Having a plant that bears the first seeds of its kind, it is a fact that the peculiarity of the growth of this plant is a most attractive, and adds much interest to its culture. The family have appropriately christened the plant General Tom Thumb. The precocious plant which stands but a few feet high, and has a large number of long, thin, narrow, flat, eight inches to three feet in length. These leaves are contained upwards of one thousand beautiful buds. Since the commencement of its growth, over one thousand persons have inspected the plant, as visitors to it. Last Monday evening, the 14th, by persons registered, and so many more visited the grounds who did not enter the enclosure at all.—*San Jose (Cal.) Mercury.*

New Horticultural Fertilizer.

Some time since we called attention to a new chemical fertilizer for horticultural purposes, suggested by Dr. De Meul, of Liège. *Les Alloues* of recent date, in commenting on results obtained by its use, says that it represents the fertilizing principle of at least one hundred times its weight of concentrated animal manure, and supplies to the plants nitrogen, phosphorus, potash, sulphur, and iron in a completely soluble state. The compound consists of 300 parts of nitrate of ammonia; 250 parts biphosphate of ammonia; 250 parts nitrate of potash; 50 parts carbonate of ammonia; 60 parts sulphate of lime, and 40 parts sulphate of iron. These ingredients are pulverized and mixed. One dram of the powder (about a teaspoonful) is then dissolved in a quart of water, and a wineglassful of the solution over two or three times a week, in accordance with the health and luxuriance of the vegetation. The plants may be placed in any kind of earth however poor, even pure sand, or may not be potted at all. It is stated that certain flowers, the *faschier*, for example, may be cultivated without earth by simply plunging the stalk in a jar at the bottom of which is an inch or so of water, just sufficient to cover the ends of the roots. To the full proportional quantity of the fertilizer is added, above specified, once in eight days. The foliaceous development of plants treated with the substance is said to be truly wonderful, and yet the rapid growth of the leaves does not interfere with the most luxuriant flowering. To this we may add that quite recently we have tried a compound hastily composed of the majority of the substances above detailed, merely as an experiment, on a small and sickly *fuschia*. The plant was drooping, and little else remained than a half dry stalk. After two applications of the fertilizer, its effect was apparent, and at the end of ten days, during which probably half a pint of solution had been supplied to the earth, new shoots had sprung out, leaves formed, and the entire plant became perfectly loaded down with buds.—*Scientific American.*

The Dairy.

EDITOR—L. B. ARNOLD, of BALTIMORE, N. Y., SECRETARY OF THE AMERICAN DAIRYMEN'S ASSOCIATION.

The Odor of Milk.

When milk is first drawn, as every dairyman knows, it is accompanied with a peculiar odor. It is known among dairy people as "animal odor," a phrase which has come into such general use as to assume a technical character. In freshly drawn milk, this odor is similar to that of the skin of the cow, derived from insensible perspiration. After standing a while confined, it assumes the smell of aerial breath, and has something of a fecal character mingled with it. Standing still longer, it takes on a smell which, according to the temperature, is more or less suggestive of a foul stable. The name "animal odor" is therefore a very natural one, and somewhat suggestive. Many people confound "animal odor" with "animal heat," using the terms as synonymous. No mistake could be greater. The odor of new milk is as distinct from heat, as steam is from the heat which forms it. Animal heat is not different from any other heat, and heat is always entirely different from odor. The former is only a condition of a thing, while the latter is a thing of itself.

Just what this odor consists of is not well known either to dairymen or scientists. The writer has regarded it as a gas formed from the changes of a putrefactive character in the waste matter of the body, and its odor, under different circumstances, corresponds to that of excretory matter. Professor Caldwell, of Cornell University, suggests that it is a very volatile animal oil, formed from the albuminoid in the milk. Its behavior, so far as yet observed, is not inconsistent with either of these suppositions. The nature of its origin, however interesting to investigate, is of much less consequence to the dairyman than its practical effects. These are important and should be made familiar to the mind of every dairyman, and hence we shall feel satisfied in noting some of its peculiarities.

Now milk never fails to have a decided odor, but it is much stronger in the milk of some cows than in that of others. Poor milk has much less of it than rich milk, a circumstance which strongly favors Professor Caldwell's suggestion. Whenever the blood becomes heated, whether from fever, exercise, or any other cause, the milk becomes charged with odor according to the degree of heat. It is greatest in a feverish condition. A mass of feverish milk acts like yeast, and soon gives its own peculiarities to all the milk it may be mixed with. The odor of new milk has always something of this character. It is infectious. It carries with it a ferment that spreads itself, and grows in the milk. The formation of that odor does not cease upon drawing the milk from the udder. At ordinary summer temperatures it keeps forming in the milk, even after it has become sour and lapped. This has been proved by facts that were followed up till the milk was eight days old.

Whether made up of gases or volatile oil, like both it expands and flies away with heat, and contracts into a solid by cold, and becomes a flavor instead of an odor.

Almost everything has an odor of its own, which results from its own peculiar composition and properties, and milk, it may reasonably be expected, has a smell of its own which is natural to it, and to which it would seem like straining points to attach any particular importance.

Such a thought will be very likely to come up in the mind of the reader and incline him to ask, mentally at least, what is the use of multiplying words upon the mere smell of a thing?

A query of this kind might well be raised if the peculiar odor of new milk were the natural smell of

the milk. But it is not so. The smell of new milk, as all that smell which dairymen are in the habit of calling "animal odor," does not come from the milk itself, but from something mingled with the milk and which is entirely distinct from it. That we have demonstrated by filtering such milk through pulverized charcoal, when all the odor was entirely obliterated, and the milk itself came out entirely free from it and perfect. New milk which was so strong smelling and full of "animal odor" as to produce floating curds every day, came through such a filter in less than five minutes from the cow, while retaining 90 degrees of animal heat, wholly divested of its peculiar odor, and perfectly delicious in flavor. Such experiments have made it clear that the "animal odor" in milk comes from something else than the milk, and that it may be separated from it. Being formed in the milk, and coming from the cow with it, it is not strange that it should be attributed to the milk itself.

Whatever may be the composition and origin of this so-called "animal odor," its effects upon dairy products are plainly seen and very troublesome.

For the use of the milk, the odor in the milk of a healthy cow is not objectionable. It helps on the process of digestion, and increases the laxative tendency of new milk. In butter and cheese it is detrimental. It promotes a strong disagreeable flavor, and hastens the decomposition of both. The more of it there is carried into butter the stronger will be its flavor, and the more easily will it become rancid. In the heat of summer, when the cows are feverish, there is more of it in the milk than usual, and more works into the butter, increasing its tendency to rancidity to such a degree as to make it extremely difficult to preserve. To cheese it is equally injurious. It promotes hudding and a strong and disagreeable odor and flavor and premature decay. To separate this odor and its cause from milk is therefore one of the most important requisites to successful dairying. To carry into butter all the odor there is in new milk, and all there is formed in it while it is standing for the cream to rise, would be to ruin it for use as food. If the correctness of this statement is not recognized, the following experiment will demonstrate it. Put a small quantity of new milk into a tin vessel, say a pint or a quart into a two-quart tin pail, so that it will readily assume the temperature of the room. Put on the cover and let it stand in the milk room long enough for the cream to rise, and then examine by smelling and tasting. If the observer does not find that odor has accumulated to such an extent as to spoil it for butter, it will be because his senses of taste and smell are sadly out of order. It will become decidedly offensive. We wish every reader of the FARMER, who uses milk for butter-making, if he has never done so, to try such an experiment. It will cost but a penny or two and but very little trouble, and will afford an instructive lesson in regard to the rapid changes that are going on in milk, and the steady formation of offensive odor that results from them, and be suggestive of the treatment milk should receive.

The injurious effects of "animal odor" are generally recognized by dairymen, though fully appreciated by but few. All acknowledge the necessity of removing it as soon as possible from the milk, but very many make no effort at all to remove it.

It can be done in different ways. When milk is exposed to the air the objectionable odor slowly escapes from its surface. This is a slow method—too slow to give a perfect purification unless the milk is spread out in very shallow vessels. It is the only means usually employed to purify milk in butter dairies. If set in deep vessels and kept cold, the gas, or the oil, which ever it may be, is condensed and easily entangled in the cream. It makes its way out of the milk with so much difficulty that the cleansing is imperfectly done, the butter is tainted with the odor, and the difficulty of keeping sound enhanced. For cheese-making the odor is sometimes

carried away by driving currents of air into the milk. A simple method of doing this has been devised by Jones and Paulsner, of Utica, N. Y. One end of an India rubber hose of sufficient length to reach to the bottom of the vessel containing the milk, is fastened to the nozzle of a large bellows. To the other end of the hose in the milk is attached a large piece of perforated tin, made concave like an inverted skimmer. When the bellows is worked the air is driven under the tin and spread over the bottom of the vessel, and escaping through the holes in the tin, bubbles up through the milk, and carries away the odor, cooling the milk at the same time. In five or ten minutes' time a man can get out as much odor as would escape in so many hours by letting it stand still in open vessels.

Another method of deodorising milk is to turn it into an elevated tin reservoir with a finely perforated bottom through which the milk falls in fine streams into a vessel below. This is also an easy and efficient way of accomplishing the desired result. These methods of deodorising milk, while they are effective, require but little labor, and are cheap and worthy of the attention of dairymen.

The ration of milk besides improving the quality of butter and cheese made from it, increases the quantity of both about five per cent., and is an antidote for taint and milk and floating curds. The best method of deodorising milk is to heat it. The odor becomes so ethereal by heating, that by the time the milk can be raised to 120 degrees or thereabouts, it will all fly off into the air, and leave the milk pure. The cause of the odor will not be entirely destroyed at such a temperature, and it can, to some extent, be formed again in the milk, but the milk will keep longer by such a heating than it would without. The objection to driving off odor by heating is the labor and expense it involves.

Those who confound the odor in milk with "animal heat," as they are pleased to call it, endeavor to remove it by quickly cooling the milk. Though it would seem that only a moment's reflection was necessary to discover the absurdity, the number that identifies heat and odor is very large. Half the dairymen we meet with, talk of getting the odor out of milk by cooling. It has the effect, it is true, of checking the escape, and thus satisfies the parties, while in fact, it only serves to retain it more firmly in the milk.

A multitude of ways have been devised and put in operation to suddenly reduce the temperature of fresh milk with the expectation of getting rid of the odor, but all to no purpose. Its effects still develop in the butter and cheese. Men who write sensibly in other respects, are weekly filling the agricultural press with the necessity of getting out the animal heat as if it were different from, and a great deal worse than any other heat. It is time such nonsense was done away with, and things called by their right names and treated consistently.

A Word about Cheese Factories.

In a recent article the *Rural New Yorker* gives some sensible advice upon the architecture of cheese factories. We hear, it says, that a number of cheese factories are to be erected during the coming year throughout the different States. Within a year or two, a few factories have been started in Maine, and considerable attention is now being directed to the dairy in that State. Much of the land in Maine is well adapted to grazing, and as farmers begin to learn something of the advantages of dairying and the associated system, we may expect to see this interest largely developed in the State.

In the erection of factories, too little regard is paid to architecture and ornamental surroundings. The early factories were rough, barn-like buildings, with no claims to beauty of construction or taste in any department connected with the establishment. There was some excuse, perhaps, for this state of things among the factories first built. The system then was considered an experiment, and the least money possible was expended in the venture. Again, dairymen were not well informed in regard to the nature of milk, and the injurious influence of taints, and their development in the product manufactured. But now that these things are better understood, while the success of the factory system has demonstrated it to be a permanent institution of the country, more attention should be given to the architecture of buildings and the laying out of grounds attached thereto, making the whole more ornamental and as attractive as possible. As taste in this direction is developed, it exerts a larger influence for good among

farmers and in neighborhoods, than many at first thought arapt to imagine. We have conversed with farmers on this topic, and, while freely admitting that improvement in the character of milk delivered should be made, and great pains taken to secure that end, they often fall back, in justification of their own filthy practices, by citing the condition of things at the factory and the general custom of patrons in the neighborhood. "What would be the use," they say, "for one individual or even a half dozen inaugurating all these nice things in our own practice when our labors would be counteracted by the slovenly practices of others, or by the filthy odors about the factory premises." Some factory buildings are so constructed that it is impossible for the manager to keep them sweet and clean, and, however much he may wish to promote improvement among his patrons, the state of his own premises weakens the force of the truths he urges.

Many of the late factories have been erected after old models, and are cheap and flimsy affairs—a disgrace to any neighborhood that makes pretensions to intelligence and good taste. Generally, in such structures, a low grade of cheese is made, for the cheese-maker, like the factory, is second-class, and thus more is lost annually, in the aggregate, than would have paid for good buildings and neat surroundings, while no improvement is made or can be expected from the patrons.

In most instances, we think it would pay these contemplating building to employ a good architect. He should understand, of course, the general plan of the various rooms, and this could be obtained by visiting some first-class establishment; then let him make his draughts and assist with suggestions as to the grounds and their adornment. A comparatively small sum spent in this way is well laid out, and will often save from wretched mistakes and a useless waste of capital.

We shall never forget the impression received on visiting the Royal Dairy at the Queen's Farm, near Windsor. The ornamentation is most elaborate, while every provision is made for neatness and a sweet, healthful atmosphere. Such a structure has an elevating influence upon character, and makes one feel that dairy farming can be turned into a delightful occupation, second to no calling or profession. And although it may not be advisable to vie with the royal magnificence here displayed—of costly marble tables, gilded porcelain, painted tiles and such elegant ornamentation as that which affords pleasure to the Queen of Britain in her model dairy; still, we hold that the associated dairy farmers can do much to elevate their calling, and that if we are to produce the best butter and cheese to be found in the world, our manufactories must rise to be higher models of beauty and purity than those which too often disgrace the country.

Income from Eighteen Cows.

Mr Jeremiah Pierce, of Erie County, N. Y., has sent us a corrected statement of his dairy, mentioned in our December number. That statement showed an average of 24.36 pounds of milk for each cow, per day, for four months at the cheese factory. The account for the whole milking season stands as follows:—

121 days at Cheese Factory	\$42 59
For calves fattened on milk	89 25
Butter sold	501 47

Gross Income from Eighteen Cows

This gives an average of \$57.55 per cow besides the milk that was used in the family, and pork made from whey and refuse milk, which is an excellent result for a dry season. These cows were fed during short pasture \$90 00 worth, or five dollars per cow, of malt sprouts or bran. Much of the butter was sold under twenty-five cents per pound. Not many of the dairies at the same factory reached \$40 00 per cow, while his averaged \$52 55, after deducting extra food. Let dairymen make a note of it.—*Livestock Journal.*

A milk cellar will be coolest when it will sink into the earth, and not much above its surface. The windows near the top of the walls should be protected from the sun either by trees or shrubs, or with blinds or shades; and wire screens inside should be made to exclude all insects. Covering the bottom with hydraulic cement will give it neatness, but as cement is not a good conductor of heat, it will render the cellar warmer in summer and cooler in winter, by preventing access to the earth. Good stone flagging would be better in this respect and hard burned brick would be better than common brick. There should be a ventilating flue run from the upper part of the apartment, in which the current of air may be regulated by means of a register.—*Country Gentleman.*

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The Canada Farmer.

TORONTO, CANADA, JULY 30, 1873

Contagious Diseases in Animals.

The British House of Commons has recently appointed a select Committee to inquire into this subject, and has already elicited much valuable information. From the examination of Mr. James Thomson, a skilled Veterinary Surgeon and Cattle Inspector for the important and extensive County of Aberdeen, we learn that the rinderpest had, after its introduction into Aberdeenshire, affected forty-six farms. On these farms 51 animals died, 193 were slaughtered or buried, and 300 were slaughtered and sold. The total loss was \$20,000, and the amount of compensation paid was \$16,000. The latest instance occurred at Millhill, where about 40 animals were slaughtered, and there were 40 left, which remained healthy, 16 of the animals were fat, and would have had to be killed in any case. A special system of disinfection was adopted on that farm. The manure was covered over with earth, and the cattle byres were disinfected with a solution of Condy's fluid, with which the walls and floors of the sheds were washed. The result was as he had stated, that although the disease made some progress, 49 of the cattle were saved by this system of vigilance and precaution. The foot-and-mouth disease had been very prevalent in Aberdeenshire for the last four years. In 1869, the loss from this disease was 4,545 animals and \$34,000; in 1870, 3,375 animals and upwards of \$25,000; in 1871, 17,285 animals and \$145,000, and in 1872, 10,311 animals and \$78,000. The total amount of the loss thus occasioned had been \$283,000 during that four years. The estimated loss had averaged \$7 50 cts. per head. The stock of sheep in Aberdeenshire was not very large in proportion to the number of cattle. Witness believed the foot-and-mouth disease to be of foreign origin, and was quite satisfied that it had not originated in Aberdeenshire. He accounted for its appearance there by the introduction of store cattle from Ireland and other places, in order that they might be grazed and fed. He heartily attributed the diminution of the disease in Aberdeenshire to the restrictions which had been adopted and carried out. Pigs have been known to be affected with pleuro-pneumonia as well as sheep and cattle. Mr. Thomson experimented with rabbits to see

whether they would take foot-and-mouth disease, having inoculated them with saliva from the mouths of diseased animals, and fed them on the turnips on which the cattle had been feeding, but without effect. Foot-and-mouth disease seems entirely confined to cattle, sheep and pigs.

With regard to pleuro-pneumonia, that disease has been extending in Aberdeenshire of late years. The result was that in 1871, the disease appeared in 30 places; 237 animals were slaughtered with a view to check the progress of the disease, and the loss amounted to \$20,000. The Aberdeenshire authorities have vigorously carried out their powers as to the slaughter of animals infected with pleuro-pneumonia. In 1872, the disease appeared on 34 farms. The number of cattle in those cases was 1,126, and of these 313 were slaughtered, the loss being \$12,700. The general result of the experience of Aberdeenshire for the year and nine months ending in December, 1872, was that the disease had manifested itself in 64 places. The number of cattle on the farms attacked was 1,993, the number slaughtered, 550, the value, \$13,200. There was realized by the sale of carcasses, hides, and offal, \$22,200, showing a loss of \$21,000, the sum paid for compensation being \$17,650.

During the last six months there had only been 5 cases of pleuro-pneumonia in Aberdeenshire. As soon as a case of pleuro-pneumonia was declared the local inspector visited the place and examined the animals infected. All the cattle on the farm were valued, and the animals affected were slaughtered forthwith, and the carcasses disposed of if they were of any value. The owner was compensated in this way if an animal was worth \$50, and the salvage amounted to \$40, the owner received three-fourths of the salvage \$30. This compensation was paid out at a rate varying from 2 cents to 2 1/2 cents imposed on the entire rental of the county, excluding the burghs.

During the last two years there have been 64 outbreaks of pleuro-pneumonia, 26 of which were due to animals imported into the country. Of these 26 outbreaks, 15 were due to Irish cattle, 4 to Dutch cattle, 4 to English cattle, and 3 to Scotch cattle, imported from different countries. During the year 1871-72, one or more animals died previous to the discovery of the disease, in twenty-five different places. The total number of cattle that died was 40, and their probable value \$2,200. In these cases, where the disease had been imported from Ireland, the cattle had shown the disease within a month of their leaving Ireland. In 1871, upwards of 10,000 store cattle were imported into Aberdeenshire. Of these, comparatively few were Dutch.

Mr. Thomson thinks that cattle infected with pleuro-pneumonia, should not be allowed to remove from a farm where the disease has existed until the expiry of three months from the date of the last outbreak. He also advocates the local authorities being armed with full powers to seize any animals affected with foot-and-mouth disease at fairs and markets, and as to the movements of infected animals on public highways, at the same time giving them power to hold the cattle and to charge the owners with the expenses.

Mr. Goodlet, of Bolshaw, Forfarshire, formerly President of the Scottish Chamber of Agriculture, concurred generally with the suggestions of Mr. Thomson, and thought if the system of "stamping out" as pursued in Aberdeenshire was universal where the disease appeared, the country would speedily get rid of pleuro-pneumonia.

NOVEL PREMIUMS.—Among the premiums offered by the New Jersey State Agricultural Society, are several of \$30 each for plans of cheap dwelling houses for laboring men—one not to cost over \$1,000, and another \$1,500. A premium of \$15 is also offered for the best essay on barn-yard manure.

Bow-Park Sale.

As will be seen by reference to our advertising columns, the fifth annual sale of the Bow-Park herd of thoroughbred Short-horns, the property of the Hon. George Brown, will take place on Thursday, the 13th of September. The animals offered comprise 10 cows and heifers, and 25 bulls and bull calves—all high classed and with registered pedigrees. Also a lot of first-class Berkshire pigs, from the imported stock bred by Earl Fitzhardinge, Col. Kingscote and Mr. Humsfryes, England, that were awarded the first prizes last year at the Provincial and London Shows.

New York State Agricultural Society.

The above-named Society announces its premium list as being "just ready" under date of July 24th. Its thirty-third annual exhibition will be held this year at Albany, commencing on Wednesday morning, September 24th, and lasting for one week, the grounds being closed on the intervening Sabbath. The location is very accessible, the accommodation of every kind ample, and we learn that preparations on the ground are in active progress, and great forwardness.

The New York Exhibition is the best managed of any we have attended in the United States. There are no horse-trots or demoralizing associations, and everything is made subservient to the true interests of agriculture. The prizes offered, to quote the language of the official announcement, "are absolutely without limit as to locality, being as freely open to the Dominion as to all parts of the United States. The only charge is the nominal sum of one dollar, which is less than the value of the provender gratuitously furnished for stock, or the protection provided for machinery and implements."

The time arrangements standing through a whole week, are novel, and we think judicious. On this point the officers observe:—

"During the former system of opening the exhibition on Tuesday morning, and continuing it until Friday, it has been found that large numbers of exhibitors were obliged to leave home the preceding week and be out on the way over Sunday, or else to run the risk of detentions, starting on Monday, and perhaps losing the first two days of the exhibition before arrival, while they are equally subject to another Sunday's detention on return. One leading object in the change is therefore to afford ample time for coming and returning on week days, without a single Sunday's absence from home, and that under the shelter of the Society's buildings, with all the security and comforts that can be provided. If the plan works as well in practice as in theory, it must thus prove of great advantage to the exhibitors; the general public derive corresponding benefit from the power of selecting any one of six days for a visit, while the increased continuance of the show should bring an increased revenue to the Society."

We commend this innovation to the thoughtful consideration of our own Board of Agriculture. They will do well to think of it, and see how it works, with a view to its adoption here should it prove satisfactory, as we believe it will.

Entries close on the 23rd day of August, one month in advance of the Exhibition. Blank forms of entry and copies of the Premium List may be obtained by addressing the New York State Agricultural Society, Albany, New York.

The Premium List is extensive and liberal; there being 665 prizes, amounting in all to more than \$10,000. In the Fine Woolled Sheep Classes the sum of \$510 is offered in prizes.

A number of our leading stockmen are no strangers at the New York State Fair. We hope that many of them will "go in and win" the present year, and that not a few of our farmers, who attend such places only to see and be seen, will be on hand also. If they take our advice and visit Albany on the occasion referred to, we are quite sure they will have no cause to repent the expenditure either of time or money.

Mr. Mechi on the Migration of Farmers.

Mr. Mechi's facile pen has been busy on the above subject. He shows how inevitable it is that farmers should "migrate," under the circumstances which beset them in Great Britain, and contends that not agricultural laborers alone, but tenant farmers, cannot fail, with proper management, to do well in the new world. He says:—

"We know that good land in this country sells for £50 to £70 per acre. For as many shillings good land may be bought in the United States or in Canada. I sometimes ask myself why do people emigrate? The direct reply is, 'to improve their condition and position in society by a large return for their capital, whether that capital be labor or money.'

"Here the relation of population to land is numerically as one to one or nearly so. In the States and in Canada it is as one to twenty, or even more. It therefore requires no conjurer to discover in which labor and capital find the greatest social weight and remuneration. I met recently, at the house of a mutual friend, a gentleman on a visit from Canada. Some twenty odd years ago he was a farmer of 100 acres of land in Suffolk, with a capital of £600. He was a "nobody" in England, paid a high rent, tithes, and rates; was overstocked with game, and snubbed if he complained of it. His independent spirit rebelled against this, so he sold off, went to Canada, and with the £600 bought a farm ready cultivated, stocked, and cropped, of the same size as the one in England. His capital soon fructified; there was no rent, tithes, or poor-rate to pay. He was a land-owner—his own master. He bought more land, became a magistrate in the district, and a respected member of the society in which he lived. The only thing he complained of was that Jack Frost now and then used his nippers most unmercifully; still there was no coal bill to pay, and yet plenty of fuel. Can we wonder, then, at labor and capital finding its way to more profitable regions?

"This emigration must go on increasing, so long as our population increases and our acres do not multiply, more especially now that mighty steam has bridged the widest of oceans."

It is astonishing that views such as the foregoing, are not more generally held in Britain. A large influx of farmers with small capital, who are having a struggling time of it at home, is just what this country needs, and the change could not fail to better the condition of that class of settlers.

The Cheese Crop of 1873.

The cheese crop of the current season is likely to prove a very fair one, both in regard to quality and quantity. The drought which at one time threatened to cut short the crop in New York and the watershed of the St. Lawrence has been checked by frequent showers, followed by a copious rain that has reached over a considerable extent of the parched country. This is making the pastures fresh and green, and the milk derived from them of better quality; the cows are being supplied with more and better water, and the increased evaporation is cooling the air and making the cows more comfortable, all of which conspire to promote quality as well as quantity in the cheese yet to be made, and they encourage the hope that the cheese of the hot season will not reach the great depression in quality it did last year. The large shipments that are being made in the Atlantic cities are keeping the market clear and sustaining remunerative prices. If the quality of our goods can be kept up, a liberal export trade will be likely to continue. A considerable number of new factories have been built in Canada the present season, and also in the western States, the cheese from which will, to some extent, swell the aggregate of the present crop, but if the quality is all right, it will not disturb the market. There is no danger of clogging the market with good cheese. Good quality increases demand by increasing consumption, and demand sustains prices. It is the poor stuff that blocks up trade, depresses prices by stopping consumption. So far there has been less complaint of poor cheese this year than usual. Taking the out-look of the present season altogether, it is one of encouragement to the cheese dairyman, and though not calculated to elate his feeling with extraordinary hopes, it is one with which he ought to feel satisfied.

Importance of Care in the Use of Reapers and Mowers.

It is distressing to notice what a number of accidents are taking place from want of due care in the management of these valuable machines. What for example, can be more sad, than such a recital as the following:

"About eleven o'clock last Wednesday afternoon, a sad mowing machine accident took place on the old Colin Munro farm, Bayfield road, near Goderich, by which Mr. Christopher Shannon lost his life. How the accident occurred is not clearly known, but from the position in which a scythe and other things were found, it is supposed that he was opening up a track for the horses along the fence, when something started the horses, and that deceased ran to catch the lines, but was caught on the foot by the cutting bar of the machine, which then passed over him, his legs and thighs were badly cut, the arteries being severed which caused him to bleed to death in a few moments. His wife and a neighbor, Mr. Alexander, were attracted by his cries, and on proceeding to the spot, found him endeavoring to stand up, but almost immediately fell down and expired. He leaves a wife and six children to mourn his untimely end."

In most cases, these deplorable occurrences result from want of proper precaution, and we cannot too earnestly entreat our readers to do all that prudence and forethought can accomplish in the way of avoidance and prevention of such calamities. Only the steadiest and most trusty of teams should be put to these machines, and they should be in charge of experienced and careful drivers. We have known mere colts put to this work, and mere children set to drive them. Human life is too valuable to be risked thus. Accidents will happen in spite of all human endeavors to prevent them, but it should be seen to that when they do take place, there shall be no room for self-reproach because of neglect or carelessness.

Measurement of Cisterns.

In computations of this kind, two facts are to be always remembered, 1st, that a gallon of water weighs 10 lbs., 2nd, that a cubic foot of water contains 6½ gallons, and consequently weighs 62½ lbs.

Suppose then we desire to dig a cistern, say 4 feet square, to contain 500 gallons; how deep must we make it? In the first place, if the cistern be 4 feet square, the superficial area of the top or bottom will be 16, i.e. 16 feet; for each foot in depth, therefore, there will be 16 solid feet of water, or 16x6½, i.e. 100 gallons. Divide this 100 into 500 and we have the required depth, viz., 5 feet.

Again, suppose our cistern is round, and say 4 feet in diameter; how deep must we make it to hold 500 gallons?

Take half the diameter, that is 2 feet; square it, that gives us 4 feet; multiplying this by 3½, and we get 14 feet, the superficial area of the top or bottom of our cistern.

Each foot in depth, in this case, will contain 14x6½ or about 78½ gallons of water, and this divided into 500 will give the depth, viz., 6½ feet nearly.

Again, suppose we wish to dig a cistern 6 feet deep, that shall have a capacity of 600 gallons, what must be the size of the opening? Now a column of water one foot in dimension and as long as the depth of the cistern, would contain 6x6½ or 37½ gallons; divide this into 600 and we get 16 feet as the area of the top or bottom of our cistern. Then if we desire a square one, take the square root of 16, viz. 4, and this will be the length of the side of our cistern. If a round one, divide 16 by 3½; extract the square root of the quotient and we get half the diameter, and this doubled gives, of course, the whole width of the opening required.

THE QUEBEC PROVINCIAL AGRICULTURAL AND INDUSTRIAL EXHIBITION will be held in Montreal, commencing Sept. 16, and closing Sept. 19.

A New Settler's Experience.

Sometimes we hear of the new settlers in Parry Sound and Muskoka being grievously disappointed with the country. It is to be feared that there is something wrong with those complainers themselves rather than with the country, and it is ever to be borne in mind that the many who are satisfied are generally silent, while the complainers make a considerable noise about their hardships. The following is an extract from a letter of an Edinburgh man who went to Parry Sound last fall. He had been on his way between two and three hundred acres of land, and under date of 5th April, 1873, he tells to an old Country friend the following not uninteresting story of his first winter in the bush:

"We have got wonderfully well through the winter. We (my son and I) have got into our woods well, and have chopped some twenty-five acres of Government, at ten dollars an acre (to get other ten dollars for logging in summer). It has been a great help to us, as we had literally no capital. Got up a good house [logs] by borrowing from the Government in the fall for advance on the clearing. Have two acres of our own to crop. Going out the first week of May for horse, cow, pig, etc. A neighbor, an old man, is going the horse. All pretty well settled round us now, though none within twelve miles of us at first [July last fall]. Some not in yet, but coming this summer. A good few from W— [where the writer first landed last spring, and wrought a few months]. Some are coming from the Old Country—old friends, and nice Christians; prospect of a happy, prosperous settlement, praise God! Fourteen miles from store and post-office, so we don't get mail very regularly, but expect a post-office nearer, and store too, ere long. Not so good a supply of provisions as I could have wished early in winter, so have had to draw it in some in deer skins. Can draw 150 pounds over the snow easily. Have had no hardships at all, I may say; any little difficulty arose from want of means—accidental, therefore. Have been all remarkably healthy and happy, and have felt the winter short. Hardly an hour of work for bad weather. Not at all so cold as anticipated—no extra clothing—shirt-sleeves every day. March has been the worst month—two or three falls of snow, and one or two blasts, though now the snow is rapidly going off. No frost in ground—have garden plants ready for transplanting.

This man had no special aptation for bush life. He was a resident in Edinburgh for a good many years, and was new to everything here. But he took to the new circumstances like a man, and instead of growling and grumbling over the fact that there are no such profitable opportunities of labor in Canada as in the Old Country, pulled off his coat and went at his work as he meant it. He shows his resource, perhaps, in wishing to get a horse when a couple of oxen would have been more to his purpose. But in spite of all that he will get on, and if he live well, no doubt, be one of Canada's substantial yeomen by and by.

Directions for Sending Insects.

All letters desiring information respecting noxious or other insects, should be accompanied by specimens, the more numerous the better. Such specimens should always be packed with a little cotton, wool, or some such substance, in any little paste-board box that is of convenient size, and in a separate box in the letter. Whenever possible, live insects, grubs, caterpillars, maggots, etc., should be packed alive, in some tight box—the tighter the better, as air holes are not needed with a supply of the appropriate food sufficient to last them on their journey, otherwise they generally die on the road and clawed up. With the specimens, send as full an account as possible of the habits of the insect respecting which you desire information. For example, what plant or plants it infests; whether it destroys the leaves, the buds, the twigs, or the stem; how long it has been known to you; what amount of damage it has done, etc. Such particulars are often not only of high scientific interest, but of great practical importance.

Provincial Exhibition.

Prize List.

The prize list for the twenty-eighth annual show of the Agricultural and Arts Association of Ontario—the Provincial Exhibition—is before us. In the aggregate of the premiums offered it differs little from that of last year; but in several of the classes alterations or additions of more or less importance have been made. This year there will be two "Prince of Wales" prizes of \$60 each, the reason of this being that last year's prize, as well as that for this year, will be competed for at the approaching show. Last year, as this, the Prince of Wales prize was offered for the best flock of Cotswold sheep, consisting of one ram, one ram and lamb, five ewes and five ewe lambs. It was awarded to one of the competitors, but afterwards, it was found that he had not owned the whole flock at the time he made his entry, but had purchased some of the animals on the ground during the show. The prize was therefore forfeited, and is this year offered for the best Durham bull and five of his calves under one year old, all owned by the exhibitor. Last year a cup valued at \$75 was presented by Messrs. Hugh Miller & Co., of this city, as a prize for the best pair of fat cattle of any age; this year the prize in that section is a silver cup of the value of \$40, offered by Association. There are more prizes offered this year for Lincoln sheep than last, but they are smaller individually, though greater in the aggregate. Last year they were \$22 and \$17 for best and second best rams; \$20 and \$15 for best and second best two ewes; and \$17 and \$14 for best and second best two ewe lambs, with additional prizes for extras. This year they are as follows:—\$20, \$17, and \$12 for first, second and third best rams, two shears and over; \$22, \$17 and \$12 for shearing rams; \$17, \$14, \$11 and \$8, for ram lambs; \$20, \$15 and \$10, for two ewes, two shears, and over; \$20, \$15 and \$10, for two shearing ewes; \$17, \$14, \$11 and \$8, for two ewe lambs; \$20 for the best pen, consisting of one ram, two ewes, and two ewe lambs. There are no extras. In the several prizes for Spanish, French and Saxon merino sheep, there has been a reduction of from \$1 to \$3. At the request of a majority of manufacturers, the following articles will be received for exhibition, but not to compete for prizes:—Grain and seed drills, mowing and reaping machines, snat machines, clover cleaning machines, and sewing machines. Under the head of "Implements for cultivating and sowing the soil, horse, steam, or other power," we notice in this year's prize list two new sections, in one of which a first prize of \$10 and a second of \$5 is offered for rotary cultivators or exterminators of quack grass; and in the other prizes of \$10, \$8, and \$6 for improved liquid manure drills for drilling two or more rows of liquid with turnips, mangolds, &c., either on the ridge or flat. In the class "Field roots, &c.," "Globe potatoes" has been substituted for "Goodriches," "Buckeye," or "Carter," and "Harrison" potatoes left out, and "Peerless" potatoes, together with two or three new varieties of turnips, inserted. In the general fruit list there have been a few slight changes, as also in the class of plants and flowers. In the class "Cabinet-ware and other wood and hair manufactures" there have been a few additions made to the old list. All that this year's grocery and provision list differs from that of last year, consists in prizes being offered in the form of \$5 and \$3 for collections of biscuit, and prizes of the same amounts for candies and confectionery. Under the head of "machinery, castings, and tools," prizes of \$12 and \$8 are offered for machines for drilling metals and similar prizes for machines for planing metals. From the musical instrument list have been omitted the prize of \$12 and \$8 offered last year for harmoniums, the latter instruments not appearing in this year's list. Last year prizes of \$6 and \$4 were offered for melodicons without distinction; this year prizes of \$8 and \$5 are offered for melodicons with one set of reeds, and \$12 and \$8 for any other sort. The prizes for cabinet or parlor organs have been reduced from \$12 and \$8 last year to \$8 and \$5 this year, but the prizes for church organs with pipes are the same this year as those for "church organs" simply were last year, viz. \$30 and \$20, and to this year's list have been added prizes of \$12 and \$8 for Church organs with reeds. In leather there was a first prize of \$3 and a second of \$2 last year for sole; this year prizes of those amounts are offered for both Spanish and slaughter sole, two sides of each. Among woollen goods there are offered this year for the first time, prizes for alpaca, viz. a first prize of \$7 and a second \$4. The above are the main points in which this year's prize list differs from that of last year.

Provincial Agricultural College.

We are glad to be able to announce that the Ontario Government has secured the services of Professor Hugh McMillan as Principal of the Agricultural College about to be put in operation at Guelph. Prof. McMillan held office for a time in the Glasgow College, a similar institution in Ireland, and he has since filled one of the Professorships in Cornell University, New York. He brings with him the highest testimonials of qualification, and has had experience in the agriculture both of the Old and the New World. The Government expect to be in possession of the farm and buildings very shortly, and intend at once to appoint the other professors, with a view of opening the College in the month of October. We hope a good class of students will be ready to avail themselves of the opportunity about to be afforded of securing a thorough and practical agricultural training.

Royal Agricultural Society's Exhibition.

Just as we go to press, and too late for any extended notice, we have received, in our English exchange, an account of the above exhibition. The implement department was described by a number of the most noted manufacturers, apparently on the ground that as they have now more orders than they can fill, it is useless expense to send their articles for display. The Society is naturally a little irritated at this, and with good reason, since the great manufacturers made their fame with the help of the exhibitions, and ought now in turn to help sustain them. Straw-elevators and stacking machines excited much attention. Great interest was taken in the judging of the aged bulls. Thirteen appeared before the judges, the winner of last year, however, being absent. The first prize of £30 was given to Marquis of Exeter's roan bull, "Telemachus," five years old. The second prize went to Mr. Linton's "Lord Irwin," the winner of the second prize last year. The show of cattle, generally speaking, was very fine. The number of horses exhibited was considerably less than last year. The prize of £50 for the best thorough-bred stallion was awarded to "Dalesman," shown by Mr. Chaplin, M.P. There was a fair show of sheep.

With the beginning of the harvest in the West, the importance of that section in the economy of the nation and of the world receives a striking illustration. From one State only, Minnesota, it is now estimated that the wheat crop will supply no less than 30,000,000 bushels for transportation. Under favorable circumstances other States will match this vast yield; and from the North-western fields, where the grain is now falling before the reaping-machine, there will be sent bread to feed empires and continents. It is not alone the money value of this great product that measures its importance, for recent revelations have shown that wealth does not always follow a successful tilling of the soil under adverse conditions of transportation, but as the source of supply for the nation and the world, our great West holds an economic power that no other section can hope to obtain. It has only to be asserted to make itself felt and acknowledged. And, as in the uprising of the farmers of Iowa, Illinois and Wisconsin, the States hasten to admit the authority of this powerful element, so throughout the West husbandry has but to reach out its hand to grasp the sceptre of rule. The organization of the tillers of the soil, which has already reached such an advanced stage, offers suggestions of the latent force represented by these figures of the forthcoming harvest, that the nation may soon find taking form and assuming a warrantable authority in government and reform.—N. Y. World.

THE MINNESOTA STATE FAIR will be held at St. Paul, Sept. 25 to 26, 1873.

THE GUELPH CENTRAL EXHIBITION will be held Sept. 16th 19th. We call attention to the advertisement which will be found elsewhere in this issue. The Prize List has not yet reached us.

Agricultural Intelligence.

The Provincial Exhibition.

The Twenty-Eighth Annual Exhibition of the Provincial Agricultural Association, will be held at the City of London, September 22-23, 1878. We publish the programme which has been fixed as follows:

1. Monday, September 22nd, will be devoted to the receipt of articles for exhibition, and their proper arrangement. Officers and members of the Association, judges, exhibitors, delegates, members of the press, and necessary attendants, will be admitted on presenting the proper card of introduction, or card of admission. Other persons will be admitted on payment of 25 cents each ticket. The admission will be the same throughout the exhibition.

2. Tuesday, 23rd.—The judges in all the classes will meet in their respective Committees Rooms at 10 a. m., and will make arrangements for the day, and their duties. Carriage drivers, if they have them, will also furnish with the blank price tickets, which they shall fill up and affix in each section so as to be ready to be affixed to the exhibits. The First Prize Ticket will be Red; the Second Prize, the Third Yellow, the Fourth White, Fifth Green, and the "Highly Commended" and "Consolation" Tickets, White. On completing the day, the judges will report to the Secretary. The receipt of all building will be closed at 11 o'clock, for the purpose of affording the judges an opportunity for the day to their duties properly. No admittance will be to the grounds on payment of 25 cents each ticket. The Annual Meeting of the British or Great Association will take place at the Court House, at 7 p. m.

3. Wednesday, 24th.—The judges of the various classes will complete their awards as early as possible. All the buildings, and grounds will be open to visitors. About 11 o'clock, the Agricultural Institute Association will take place at the Court House this evening at 7 o'clock.

4. Thursday, 25th.—Admission 25 cents. The Provincial Animals will be exhibited in the ring at 2 p. m. The Annual Meeting of the Directors of the Provincial Agricultural Association, for the purpose of electing auditors, deciding upon the place of holding the next exhibition, and other business, will take place at 7 p. m., at the Court House, of Parliament Street, between King and Dundas Streets, London. The President will deliver his address at the Annual Meeting.

5. Friday 26th.—Admission as the same as on previous days, till 2 p. m. At 2 p. m., the Exhibition will be considered officially closed, after which no one will be admitted into the Crystal Palace, and exhibitors may commence to take away their property.

6. Saturday, 30th.—The Treasurer will come and pay the premiums at 9 a. m. Exhibitors will remove all their property from the grounds and buildings. The gates will be kept closed as long as necessary, and none will be admitted except those who can show that they have business to attend to.

A Catalogue of all the Entries of Animals and Implements, giving the names of Exhibitors, the names and short pedigrees of the animals, &c., will be prepared, and will be on sale at the Grounds. Price ten cents.

Annual Letting of Watercombe Rams.

This event took place on July 2nd, when one hundred and fifty-four rams were offered to be let and sold, and keen was this competition which prevailed for the possession of the superb animals, in which good wool, symmetry, size, and Down quality were blended. The letting and sale was entrusted, as usual, to Mr. T. Lawton, auctioneer, of Dorchester, whose long experience in wielding the hammer on such occasions is pretty well known. The attendance was numerous, including bidders from several of the adjoining counties being present. After the preliminary view of the flock, the visitors were invited to partake of luncheon, which in accordance with an old custom, was spread in the capacious barn, converted for the nonce, with its newly whitewashed walls, into a handsome dining hall. The company soon afterwards repaired to the sale ring, and business was begun, first coming the two-tooth rams, mostly to be let for the season until November 7th. These, as in the succeeding classes, commanded, as was expected, high and satisfactory figures. Lot No. 1 went into the possession of Mr. J. Homer, at 7½ gs., while Mr. Tucker took the next at 9½ gs. The third lot, a fine specimen, considering the age, was knocked down to Mr. Chilcott at 13½ gs., the animal being let until

September 12. Mr. R. Fowler hired No. 4 lot at 12½ gs. Mr. B. Sant, of Roger's Hill, was a successful bidder for No. 5 lot at 6½ gs. The two next rams realized 8½ gs. and 9½ gs. respectively, while No. 9 lot, a choice and magnificent animal, was let until October 10th, to Mr. Rawlence, the famous breeder of Dalbridge, at the top figure, letched in this class, viz., 49 gs. Mr. Porter, of St. Giles's, let No. 1 lot 10 at 9 gs., the next passing into the hands of Mr. H. Hawkins at 10½ gs. Mr. George took lot 12 at 9 gs. Mr. Tucker bid 16 for 7½ gs.; Mr. Taylor, of Tarrant Moncton, offered 19 gs. for lot 17, which was accepted, while the next made the same high price in the class 29 gs. Mr. Tucker lifted the twentieth lot at 10 gs. The next, after a very close competition, was knocked down to the bidding of Mr. Bone at 17½ gs., the same well-known agricultural agent and successful lot—No. 22—equally superb, at 15 gs. An animal of remarkable symmetry and quality, No. 27—was let for 36 gs. to Mr. Porter, of Cicheh. Mr. Galpin hired lot 57 at 12½ gs.; for the next, a complete sheep, Mr. Bone successfully bid 24 gs. Mr. Chilcott took lot 45 at 17 gs., the same figure being raised by the next lot (let until September 11th) from Mr. Branstere, of Affpu, at 15 gs. Mr. Joseph Saunders, of Nunton, hired lot 45 at 15 gs.; Mr. James, of Nether Corn, bid 17 at 15 gs.; and Mr. Homer at 13 gs. The fourth lot made 12½ gs., the bidding of Mr. Paul. Mr. James, of Bradford, became the hirer of lot 52 at 15 gs. Mr. Purdie hired at 11 gs. an 18½ gs., and Mr. Porter at 14½ gs. The bid of Mr. E. A. Homer and Mr. Joseph Homer were likewise successful in the same class. The four-tooth rams, let (excepting one lot) until November 7th, proved fully an attractive. Mr. Tucker hired lot 69 at 15½ gs. Lot 73, a really splendid ram, on which the best of ears had been bestowed, passed into the hands of Mr. Rogers at 29 gs., while Mr. C. H. Mayo, of Manor Farm, Puddington, took lot 91 at 18½ gs. Other lots were let at 15 gs. and 11½ gs. Lot 60, exceptionally let until 10 p. m., brought 12 gs. The lots sold, numbering 11—mostly six-tooths—made good figures, Mr. Bone purchasing at 10½ gs., Mr. G. Wood Homer at 11½ gs., Mr. George at 8½ gs., and Mr. Scott at 8½ gs. The remaining lots—mostly six-tooths—were let (excepting lot 188 until Sept. 12th) until November 7th.—Abridged from *Dorset County Chronicle*.

The Gaddesby Short-horns.

The second sale of the Gaddesby Short-horns, which comprised some first-class cattle, the property of Mr. Edward H. Chesney, Gaddesby Hall, Leicestershire, was held last week at Gaddesby, the auctioneer being Mr. Henry Stradford, of Nunton Square. Some of the largest and most noted breeders in the country attended. Luncheon was served at half-past twelve in a large marquee, presided over by Lord Shelmersdale, and among those present were Lord Penrhyn, Lord Deceive, Sir W. Lawson, M. P., Mr. Scamuda, M. P., Mr. Brogden, M. P., Mr. H. A. Brassy, M. P., Colonel Gunter, and Colonel Kingscote. After luncheon, the party adjourned to the sale-ground in the paddock, where, round an enclosure, were from 300 to 500 of the largest graziers of the land. The highest price made was for the 12th Duchess of Geneva, red, calved the 27th of April last, by the 9th Duke of Geneva (23391), dam 11th Duchess of Geneva, by Baron of Oxford (23371), and bought by Sir W. Lawson, M. P., for 955 guineas; the lowest price was for Oxford Patterly, roan, calved May 23, 1872, by 7th Duke of Oxford (23534), dam Fair Enterly Princess, by 14th Duke of Oxford (21635), and which was bought by Mr. Stratton, of Northampton, for 69 guineas. The highest price made for the bulls was 520 guineas, for the 2nd Duke of Gloucester, red, calved December 1872, by 10th Duke of Thorndale (23458), dam Duchess of Airdrie, by Royal Oxford (18774), and which was bought by Lord Deceive; the lowest price being 43 guineas for Earl of Waterloo 4th, roan, calved March 27, 1873, by Baron Oxford 4th, (23530), dam L. Waterloo 14th, by 2d L. Waterloo (22198), and which was purchased by Mr. Swingle, Langham, Ockham. The amount realized for the cows and heifers was £8993 5s., the average price being £221 3s. 9d.; and the total amount for the bulls £1,514 12s.; average £187 1s. 6d. each. The total amount realized by the sale was £10,507 17s. Only one lot was withdrawn. Among the purchasers were Lord Shelmersdale, Ormskirk, who purchased Lady Oceania, 360 guineas; Lord Deceive, Under by, Lancashire, who bought Lady Sale of Putney, 470 guineas, and Oxford Batterly, 505 guineas; Sir W. Lawson, M. P., who bought Montreal, 160 guineas, and Wild Princess, 420 guineas; and 12th Duchess of Geneva, 925 guineas; Mr. Brogden, M. P., Ulverston, who purchased Waterloo, 325 guineas; Mr. H. H. Brassey, M. P., Aylesford, Kent, who purchased

Lady Waterloo 25th, for 395 guineas; Mr. Fox, Sandwich, Cheshire, who bought Lady Waterloo 15th, 165 guineas, and York's Mastral, 550 guineas; and Mr. Gow, Cambou, Northumberland, who purchased 2d Waterloo, 395 guineas; Wild Duchess of Geneva, 325 guineas; Wild Duchess of Geneva 2d, 255 guineas; Pantaleo's Duchess, 115 guineas; Wild Princess, 50, 295 guineas; and Lady Waterloo, 27th, 110 guineas.—*N. D. Agriculturist*.

Irish Agricultural Statistics.

We clip the following statistical summary from the *Country Gentleman's Magazine* for July. It will be read with interest by all our readers, especially those of them who hail from the "Emerald Isle."

From the agricultural statistics of Ireland, for the year 1872, just issued, it appears that the acreage under culture last year, as compared with 1871, shows a general decrease in cereal crops—in wheat of 19,157 acres, oats 11,425 acres, barley 1,255 acres, bere and rye 1,589 acres. Potatoes decreased by 64,623 acres, mangold wurtzel 2,322 acres, and cabbage 6,424 acres. The crops which show a decreased estimated average produce per acre in 1872, compared with 1871, are—Wheat, 0.6 cwt.; oats, 1.5 cwt.; barley, 0.9 cwt.; rye, 1.1 cwt.; potatoes, 0.5 ton; turnips, 1.6 ton; mangold wurtzel, 1.1 ton; and cabbage, 0.1 ton. The crops which give an increase in the estimated average acreable yield are—Bere, 0.2 cwt.; flag, 0.2 stones; and hay, 0.1 ton. In the estimated total produce of the cereal crops there is a diminution of 921,864 qr.; in wheat the decrease is 93,163 qr.; in oats, 756,558 qr.; in barley, 61,228 qr.; in bere, 3,259 qr.; and in rye, 4,663 qr. Turnips have decreased by 233,077 tons; potatoes by 967,611 tons. This large decrease is owing to a less extent of potatoes having been planted, and also to a much smaller yield than in the previous year. According to the returns, the product of potatoes per acre has been for all Ireland, with the exception of the year 1861, (the lowest average yield since those statistics were first taken in 1847. In the counties of Cork, Down, Bery, Limerick, Waterford and Wexford, the yield was less than one-half of that in 1871, when the crop was considerably below the average. The unprecedented number of wet days during 1872 proved very injurious to the crops generally. Rain or snow fell on 233 days throughout the year, being sixty-three days above the average of the ten years previous, and thirty-two days more than in 1862, which had the highest number of days on which rain or snow fell during the same period (ten years). The following crops show an increase in the total estimated produce:—Mangold wurtzel 266 tons; cabbage, 57,587 tons; flax, 4,170; and hay, 180,471 tons. The number of emigrants who left the Irish ports in 1872 was 78,751, being an increase of 6,777 compared with 1871. The number of males who emigrated was 46,711, being 4,817 more than in the previous year; the females amounted to 32,040, being an increase of 1,959 compared with 1871. From these figures it is evident that, whatever other advantages a conciliatory policy may possess, it does not induce the Irish people to remain at home.

Advance in Short-horns.

The prices in Short-horns were thought to be very extravagant last year. This season they have been considerably higher, and before the conclusion of 1873 there is every probability that an amount of money will be spent on individual animals that would astonish Mr. Caley, if like the ghost of Hamlet's father, he should chance to revisit "the glimmers of the moon." The fancy breed of Mr. Caley and Mr. Collings has become the chief of cattle. No animal appears to have the same standard—the same capacity for producing animals, by whatever means, so suitable for the butcher, as those which were originally reared on the banks of the Tees. Their fame long ago spread to America, and now we learn that the remaining few of Mr. Caley's herd for the sale of Mr. Campbell's herd, a four-figure one though it be, will not be more than about one-half of the sum which a single animal will bring. The highest prices realized this year up to the present time, were for the herd's of Col. Towndley and Mr. Chesney, Gaddesby Hall, Leicester. The average made on Thursday last was, for cows, £321 odds, and for bulls, upwards of £167. Last year, Lord Dunmore made £251 each for 1.7 cows, and £153 for his bulls. The best sale of the season was that by Messrs. Harvard and Downing, where 75 cows averaged £231, 2s., and 11 bulls, £271, 10s. Col. Towndley got £151, 5s. each for 1.7 cows, and £80, 13s. 6d. for his bulls. Short-horn breeders have every reason to be proud of the particular kind of animals they have chosen, and especially those of them which have a leaning to Dutch blood.—*Farmer (Linq)*.

Stock Sales.

Mr. Wm. Long, of Lansing, Canada, writes us that he is on the eve of leaving for Philadelphia, by vessel, and expects to arrive there about the 24th inst., with two very valuable imported draught stallions. He will probably remain at Philadelphia about two weeks, and will announce his whereabouts in that city in a subsequent advertisement.

Mr. Walter Cole, Devon Stock Farm, Barvia, has sold to W. H. Van Epps & Son, Dixon, Ill., a car load of Devon cattle, shipped July 15, and comprising the following animals:—Bull Helena's Huron, 315; cows and heifers Butterfield's Helena 1st, 812; Helena 11th, 1018; Maggie, 1111; Candy Girl 2d, 815; Georgian 5th, Helena 47th, Helena 50th, Wanda 6th, and Cole's Helena, 4-3—also a trio of Berkshire pigs, and a trio Golden Poland fowls. Mr. C's herd of Devons is well known as one of the first produced in this State, and on the American continent, and the frequent demand for them shows they are appreciated at the West.

The Sale of Mr. Fowler's shipment of Jerseys, &c., by A. M. Hickman, Auctioneer, Philadelphia, July 15, attracted a remarkably good attendance, and the results were very good:

- HEIFERS
Beauty, 2 years, Gen. Webster Hingham, Texas, \$250
Fair Queen, 2 years, do do do do \$200
Virtue, 2 years, J. H. Jones, Northumberland, do do do do \$150
Aunt, do do do do do do do do \$100
Grand Young Inc., years, J. C. Howard, Del Co., do do do do \$100
Young Beauty, 2 years, Furness Rogers, Del Co., do do do do \$100
Mischief, 2 years, P. A. Long, Northumberland, do do do do \$100
Celeste, 2 years, T. W. Wines, New York, do do do do \$100
PULS
Belle, 15 months, James T. Le, Middlebury, do do do do \$20
Ball Club, J. H. Stevens, do do do do do do do do \$10

The boar pig Merryman, 11 months old, sold to G. W. Brown of Maryland, for \$50. Tom's does sold for \$17, \$20, \$29, \$45 to \$50 each.—C. C. L. N.

Agricultural Intelligence.

Crop Report.

Our local exchanges report a better hay crop than was anticipated, while the root crops, which it was thought would be a total failure on account of the long continued drought, have picked up wonderfully with late rains.—Cabrady Journal.

The fall wheat here promises remarkably well; it will be shortish but is thick on the ground. Oats will be an average crop. Plugs good. Barley not much sown, but not much into it. Potatoes excellent in some parts of the township. The potato bug is doing some harm but will not amount to much. The hay crop will be very poor owing to the absence of rain. Taking all things into consideration the county seems to be in a prosperous state.—Lindsay Post.

We have not seen a better specimen of wheat for years, indeed we think it would be hardly possible to produce a better specimen, than that left with us the other day by Mr. Francis Eaton, Ephraim. The heads are full to the very tip and of an extraordinary height, while the berry is clean, plump and large. We have specimens of both Bield and Bread-wheat. Mr. E. began cutting on Thursday of last week. Reports from all parts in this section give equally encouraging reports of the excellent wheat yield.—Merford Monitor.

The wheat harvest may be said to have now fairly commenced, many farmers having commenced to cut on Tuesday last, and every day since having added to the list. Of course it is impossible to say that the crop is a good one, so much of the plant having been winter killed; but what was left has filled out nicely, and is a good sample. We hope and believe that it will thresh out well.—Fall Reporter.

The hay crop is looking splendidly, and operations have commenced, which will increase in the number of mowing machines and horse-rakes.

Potatoes do not look so well as usual, but there is plenty of time yet for improvement before maturity.

All crops are promising, and will be a good crop.

The work of Local Agricultural Society is much felt, but it is to be hoped that another year will not be allowed to pass without such an organization.—Telegraph, St. Johns, N. B.

The Montreal Times says:—We are very glad to notice that great benefit to the spring grain has been derived from the July showers, which have been frequent. The prospect has therefore very much improved within the last fourteen days. In some localities there is little or no complaint of drought, while in other parts of the season has been somewhat singular, being characterized by great inequality in the rain-

fall of various localities. That spring wheat will be much below the average, we see no reason to doubt, the later sown grains, though having suffered from drought, will do better. Roots if not sown too early may also yield fairly. Hay is undoubtedly a very deficient crop. Fall wheat is ready for harvest in many places, and will give a full average yield.

Notes of the Crops in East Grey, and along the track of the Northern & T. G. & B. R. R.

In East Grey the hay has been mostly all harvested, and is not more than one-half the weight of the crops last year, along both the railroads the hay crop is very light and becomes lighter towards the south.

The fall wheat that was sown in good time is very good in East Grey and down the Northern, while the late sown is poor. Along the T. G. & B. there are very few good fields of this grain. There appears to be a greater breadth and heavier crop of the Bield variety than of any other.

In East Grey the spring crops have done well so far, about five weeks since, and now promise a fair crop, and in many cases very heavy returns will be obtained. The farther south, the worse are the spring crops; and with the exception of barley which is good, near Toronto they are all very poor indeed. The appearance of the fields in the excellent hay or townships indicates that the lack of rain is the cause of the partial failure of the spring crops there this season.

Your correspondent did not notice any field of potatoes badly "trinned" by the Colorado bug along those lines of railway; but has heard of much harm being done by it in East Grey.

It is more than probable that there will be high prices in most of the localities above mentioned this season for spring crops, whose price depends upon local supply and demand.—Merford Monitor.

U. S. Agricultural Fairs for 1873.

STATE, PROVINCIAL, ETC.

- American Pomological Society, Boston, Sept. 10-12.
California, Sacramento, Sept. 15-21.
Central Ohio, Columbus, Sept. 9-12.
Cincinnati Exposition, Sept. 3 to Oct. 4.
Georgia, Macon, Oct. 27-31.
Illinois, Peoria, Sept. 15-20.
Indiana, Indianapolis, Sept. 10 to Oct. 10.
Iowa, Cedar Rapids, Sept. 8-12.
Kansas, Topeka, Sept. 22-26.
Louisiana, New Orleans, April 23-30.
Maine, Bangor, Sept. 16-19.
Maryland, Baltimore, Oct. 29-31.
Michigan, East Saginaw, Sept. 15-20.
Minnesota, St. Paul, Sept. 23-26.
Montana, Helena, Sept. 29 to Oct. 4.
Nebraska, Lincoln, Sept. 1-6.
New Hampshire, Manchester, Sept. 30 to Oct. 7.
New Jersey, Newark, Sept. 22-26.
Northern Ohio, Cleveland, Sept. 29 to Oct. 4.
North Carolina, Raleigh, Oct. 14-18.
New England, New York, Medford, Sept. 2-6.
New York, Albany, Sept. 24 to Oct. 1.
Ohio, Mansfield, Sept. 1-5.
Pennsylvania, Erie, Sept. 1-26.
Rhode Island, Providence, Sept. 9-11.
Vermont, Rutland, Sept. 9-12.
Virginia, Richmond, Oct. 28-31.
Wisconsin, Milwaukee, Sept. 22-26.—Cermantown Telegraph.

Private citizens of Hamilton contribute to the beauty of Gore Park by placing therein choice plants and flowers. A beautiful specimen of the American Albion is attracting much attention at present, and is the property of an appreciating floriculturist who intends adding to the collection.

THE CROPS IN AMERICA. The New York Herald and New York Tribune publish long reports showing the condition of the various crops in almost every section of the States. Much the largest number of the reports in the Herald represent the crops as being in such a favourable condition as to warrant the anticipation of a yield which will be fully up to the average of former years. From some of the Southern States, however, there come deep lamentations on account of long continued wet weather, which in some localities, it is stated, extended over a period of fully five weeks, which enabled grass to outstrip the cotton in its growth, and to put a serious check on the progress of the latter towards consummation. In the Tribune the review is somewhat discouraging, the influences of the season being stated as unusually unfavourable.

Breeder and Grazier.

The Albany Cattle Market.

The following facts are furnished for the Country Gentleman by its reporter of the cattle market at West Albany:—

But few readers know the amount of business done at the cattle yards at West Albany every week. On an average, about 6,000 head of beef steers, 8,000 sheep, 300 cows and calves, 100 horses and 20,000 hogs are fed and watered. Usually all the stock changes hands here, being sold to New York and eastern men, or "local dealers." Under the latter head are included butchers from surrounding cities and villages within a radius of 100 miles, as well as city butchers. From \$100,000 to \$120,000 are exchanged for stock every week. A large hotel, with a telegraph office attached, and over two miles of cattle sheds and yards, besides an immense barn, are devoted to the accommodation of dealers and their stock. The hotel and yards are owned by the railroad company, and leased to J. B. Dutcher and A. M. Allerton, who sub-let the hotel to C. B. Stewart, and the yards to T. C. and P. L. Eastman.

Nelson Morris, of Illinois, ships more cattle from Chicago than all the other dealers in that market. He has succeeded to the position formerly held by John T. Alexander, and is known as the "Cattle King." Next to him come H. S. Rosenthal and Isaac Waixel, Henry Livingston, S. Rosenthal, B. C. Coons, George W. Dewey, Michael Kirchway, M. Burns, W. W. Robbins, P. L. Eastman, A. Woolerton, M. C. Gillice, A. H. Wood, A. G. Heath, G. F. Swift, W. H. Munroe, W. H. Thompson, Rankin & Thompson, S. W. Clark, S. J. Clarke, T. Gillis S. Haley.

The principal dealers in sheep are Hugh Carton, George Dillenbeck, O. Hallet, Lerch & Barnes, and Capt. Roger McGraw. The two former are the heavier dealers, and annually buy and sell hundreds of thousands of sheep and lambs.

The dealers in cows are John Flood and John Doyle.

In hogs, J. B. Butterfield, L. S. Smith, O. Brown and Wm. Lester.

In horses, C. B. Stewart, O. P. Prescott, A. B. Larkin, and B. Brady.

Number of Cattle Handled.

The amount of business done here annually, as compared with other points, is shown in the following table, giving the number of cattle arriving the past year at various places:

Table with 3 columns: Location, Cattle, Sheep, Hogs. Rows include Washington, Baltimore, Philadelphia, New York, Albany, Providence, Boston.

The average shrinkage of an animal during its transportation from the western feeding grounds to market here is about 3 per cent., or, as given by Mr. Eastman, 120 pounds on a steer weighing from 1,300 to 1,500 pounds.

Is it Profitable?

During many years' experience in reporting the live stock market at this point, and from conversation with veteran dealers—we write knowing whereof we speak—we feel justified in saying that, as a rule, the smaller dealers in stock seldom or never retire rich.

The shrinkage in animals in transporting from the west to the eastern markets—the vicissitudes of the rail, effect of the weather on the market, and the heavy expenses attending the transportation and "carrying over a week"—if there happens to be an overcrowded market—all tend to eat up the profits of a month in one single week. Only those who sell on commission grow rich. We are glad to write that there are many who act in the capacity of brokers, so that, on the whole, the men who follow this tedious business of travelling on the cars, looking after their stock, make a good living, though they seldom acquire great riches. They are a hardy, good-natured, whole-souled body of men, ever ready, with purse and hand, to aid one another as well as every deserving charity.

Summer Feeding Cattle.

In the process for feeding for beef and pork, the common practice in the west of feeding cattle and hogs together, and feeding mostly on shock-corn in winter, has an advantage over all other systems of feeding for economy and profit.

One important advantage in feeding any stock for market, I think is generally overlooked by most feeders. This is the practice of summer feeding or feeding fattening animals while on grass. It is a notorious fact that two-thirds of all the cattle fed in the west, are put into the market only half fed, and consequently not more than half the profit is realized that should be from such feeding. We will take, for instance, a steer, such as are purchased usually at two years old past, during the summer at about thirty dollars, weighing say nine hundred pounds; he is kept on grass until cold weather in the fall, and changed to corn.

It is found to be good feeding that puts on two hundred and fifty pounds during the winter, with one hundred bushels of corn, and in such a winter as 1872 and 1873, about one hundred and fifty pounds would be a liberal estimate for the amount of grain. A steer costing say thirty dollars, and fed one hundred bushels of corn at a cost of twenty dollars more, making fifty dollars cost at three years old, with a weight of say eleven hundred pounds, allowing for good feeding and good stock (common stock understood), worth at home four dollars and fifty cents per hundred, or forty-nine dollars and fifty cents for the steer marketed at this age; and allowed the gain accruing to hogs fed with cattle to pay for the summer pasture and labor of feeding in winter, we find, with good management and good luck, that at the above figures, which are at about the proper estimate for the spring of 1873, and where cattle have had good protection from storms and fed and watered properly, the above figures of two hundred pounds gain for one hundred bushels of corn would be a fair estimate, so that where corn has been purchased at fifteen cents per bushel a small margin of profit is the result.

Now we will take these half-fed three year old steers and put on grass, say for six months, with liberal feed on tame pasture at a cost of eight dollars each for pasture and fifty bushels of corn fed during the summer at a cost of ten dollars more, making a cost up to the next winter of twenty dollars per head to cover all cost, and we have at this time a steer three and a half years old costing seventy dollars with one year's feeding.

Any experienced feeder will agree with me that if a steer will put on two hundred pounds gain during the winter for one hundred bushels of corn he will put on additional gain for the six months of summer, with good pasture and fifty bushels of corn, three hundred pounds gain, and at this time will be ripe for the market, and bring say five and one-fourth cents per pound, or seventy-three dollars. The gain on hogs fed during the summer we find is about double that fed in the winter, and would be, say eight dollars more gain on the same feed, or eighty-one dollars and fifty cents, or eleven dollars and fifty cents profit over and above what would be realized the six months previous, and the feeding still on for six months more, or until four years old, would give a correspondingly higher price per pound, and a corresponding profit.

For another illustration of feeding we will take, say a half-blood or three-fourths-blood "Short-horn," which, if kept on reasonable good feed until two years old, will, I find by experience, weigh about twelve hundred pounds on the average, and this steer at that weight is worth four cents per pound, or forty-eight dollars, and will, during the next six months, with the same feed allowed the native steer, gain four hundred pounds and weigh sixteen hundred pounds at the same time the native weighs fourteen hundred, and while the native will bring, say five and one-fourth cents, the grade Short-horn will bring six cents, which is ninety-six dollars, and allowing the cost of the feeding say twenty dollars, making cost in all at say thirty to thirty-two months of age sixty-eight dollars, we find we have twenty-eight dollars profit where we had eleven dollars and fifty cents profit on the native; but there is another item still left out, as it will be noticed that the native steer, in this calculation, is one year the oldest at the time it is put into the market at a weight of fourteen hundred pounds. This one year's difference in age we will estimate at eighteen dollars, which added to sixteen dollars and fifty cents in favor of the Short-horn steer. Now these figures are for a good native steer and a good grade Short-horn steer, and are as near the facts as my experience and observation can make them, and I think will be corroborated by all experienced breeders, or

those that have had experience with Short-horn cattle.

But some one may reply that it takes more money to invest in Short-horns, and the cost of a Short-horn bull is quite a little sum. We will investigate this part of the subject a little, and say a good Short-horn bull costs three hundred dollars, and the interest on this would be thirty dollars for one year, and say a scrub is worth thirty dollars, and the interest is three dollars per year, and the cost of keeping the same in both animals, leaving a difference in annual cost of twenty-seven dollars. We will refer back and note the fact that we set the price on the native steer at thirty dollars, and on the grade steer at forty-eight dollars, both the same age, past two years old, or say thirty months.

We will presume the farmer raises his own steers for feeding, and the cost of keeping is the same at the age referred to, thirty months old. It will be readily noticed that the Short-horn is estimated worth eighteen dollars the most, and this is credited to the cost of the bull, and that twenty calves are raised in one year by the farmer, at an average value of eighteen dollars each above the value of native steers, or in all three hundred and sixty dollars profit for use of Short-horn bull in one year.

It is on this plan of having good animals and feeding well from the time the calf is dropped until it goes into market, that the western farmer may be enabled to keep the skeleton away from the corn crib.

About the first of January, 1872, I sent a barren Short-horn cow into the Chicago market for beef, which was sold for seven cents per pound, and came to ninety-seven dollars, but this was a small cow, below the average size, and a common size Short-horn cow should weigh at least sixteen hundred in condition for beef, which at seven cents per pound is one hundred and twelve dollars. At the same time good native steers were selling in the same market at five cents per pound on an average weight of twelve hundred pounds, or sixty dollars each. Now of these two animals the cost of raising would be about the same, and while one would give no profit in the raising, or only cover about cost, the other would give from forty to fifty dollars profit.

Now these are figures that show for themselves, and such facts should convince any farmer as to the advantage of keeping none but good stock, and feeding well and taking good care of all animals.—*M. Briggs in Western Farmer and Stock Grower.*

A Plea for Ayrshires.

Which is the most profitable breed of cows for the dairy? is often asked. Farmers and dairymen differ upon this question, as they do upon many others. Each one has his favorite breed, and very few take the trouble to investigate the subject. Most of the dairymen who purchase their cows, buy as cheap as they can, rather than pay a liberal price for superior milkers. I have frequently heard them say, "I don't want to pay anything for blood."

Every dairyman admits that some cows are much better milkers than others, and that their greatest net profits are obtained from them. Some writers claim that those superior milkers are not confined to any particular breeds, but that there are some families among all breeds. This may be true to some extent; still, it is calculated to mislead. The facts are, there are not many poor milkers among some of the milking breeds. The reverse is true of breeds which have been bred for other purposes.

I believe it is generally conceded that the Ayrshire stands at the head of the list for dairy purposes. The probabilities are that they will give the best returns, for the amount of food consumed, of any breed. I have a five-year-old cow that is averaging about fifty pounds per day; she dropped her calf May 2nd. I commenced to weigh her milk the 10th; she was producing about forty pounds per day. Her food was clover hay, with about two quarts of Indian meal and four quarts of buckwheat bran per day; shortly after that she was allowed to graze a portion of the day. Her flow of milk increased but little until after the 25th. I then gave her better pasture, and gradually reduced her other food until the 5th inst., when I stopped it. Her pasture is mostly red clover, with some white and other natural grasses intermixed. She does not weigh a thousand pounds, and no doubt will give her live weight in twenty days.

I am aware that this is not an extraordinary quantity of milk per day; still, when the age and weight are taken into account it is seldom equalled. I think she is not nearly matured; she has improved more within the last year than during any previous one. I have two three-year-old cows which promise equally

well; also, a number of two-year-old half-blood heifers which are giving milk, which I think will produce as much when they arrive at the same age. They will be larger animals, and no doubt will require more food.

I have never known a poor milker bred from a thorough bred Ayrshire bull and our native or grade cows. Would it not be more profitable for dairymen to raise their cows from such bulls than to purchase such cows as they are using? I have heard it asserted that the dairies of Herkimer County did not produce, on an average, more than thirty pounds of cheese per cow. This might be doubled, and, by continuing to breed from thorough-bred bulls high grades would be obtained, which would be nearly equal to thorough-breeds.

Many object to Ayrshire cows on account of their size. They say they will make but little beef when turned off for that purpose. A cow that will make a large amount of beef will generally produce but little milk, and will consume more feed. If such cows are kept a number of years, each one charged with the expense of keeping and labor required, and credited with milk produced, the balance will be largely in favor of the former. Dairymen should not keep cows for beef. I am aware that there is a great prejudice in the minds of many dairymen against thorough-bred cows. They cling to the native cows. This has arisen from using those that were bred for other purposes. A thorough-bred Ayrshire cow is just as much superior for the dairy to the old native as the Durham is for beef, or the Berkshire swine for pork, or any other thorough-bred animal. In either case we avail ourselves of what it has required—capital.—*Bart. Home.*

Value of Sheep.

The high price of wool this year, and the great demand for sheep or lambs for meat, has made many a farmer wish he had a flock of sheep. The price of wool for a few years back has been so low and fluctuating that it has led the farmers to kill off their sheep, and just the same results follow that have in years before; they find, when wool advances, they have no sheep on hand. We have advocated high prices for wool, advising the farmer if he had any and could afford to hold it, not to sell. Although there has been a little depression in the market, we still adhere to the view that the woolen mills during the coming season will be large buyers of domestic wools; and we notice the reports from foreign markets show great firmness abroad, arising from the same causes that prevail in this country—shortness of supply. Nor do we think, with the growth of business in our country, the supply will, for several years to come, exceed the demand for a medium grade of wools, which are the staples grown here.

The question of raising sheep for their meat is not an unimportant one; with the growth of the country the consumption of eatables increases, and the favorite meat now, and that which brings the highest price, is lamb; and with an increasing interest in it, as the most wholesome and palatable of all meats, it is already getting so scarce and high that it has to be purchased only as a luxury, by those who can afford it. We have spoken thus far of the demand of wool and mutton at a price that will pay largely for sheep-raising. Their value to the farm is not, perhaps, fully understood. It is an old proverb, "Whenever the foot of the sheep touches the land it is turned into gold." Sheep will enrich land faster than any other animal. On the mountain pastures they are valuable in clearing up the land, freeing it from weeds, shrubs and briars, and bringing it to clover and nutritious grasses. They are easily raised and cared for both in summer and winter. The risk of loss by death is small, and if well managed, sheep will not die in debt to the owner. If it dies at birth it has cost nothing. If it dies the first year, the wool and pelt is worth all it has cost up to that time. Sheep husbandry has a value to make the land more profitable, more productive, at a less expenditure than any other animal kept on the farm.—*New England Homestead.*

The brain of a horse seems to entertain but one thought at a time; for this reason, continued whipping is out of the question, and only confirms his stubborn resolve. But if you can by any means change the direction of his mind, give him a new subject to think of, nine times out of ten you will have no further trouble in starting him. As a simple trick, a little pepper, aloes, or the like thrown back on his tongue, will often succeed, by turning his attention to the taste of his mouth.

Sheep and Clover.

These we believe to be the two great agencies that are to revolutionize Southern agriculture...

Do you wish to know how to raise sheep... read the following...

Freight to N. York... 22 1/2
Insurance... 2 1/2

2000... 10 00
2500... 12 00

The cattle must be well fattened and the best feed...

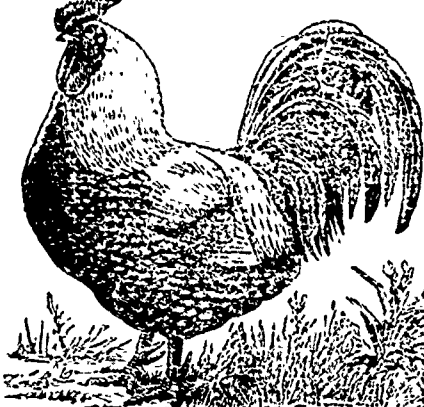
Sheep in Japan - In place of iron shoes, the sheep are shod with straw shoes...

Commonness of Cross - We believe that the farmers of the North-West...

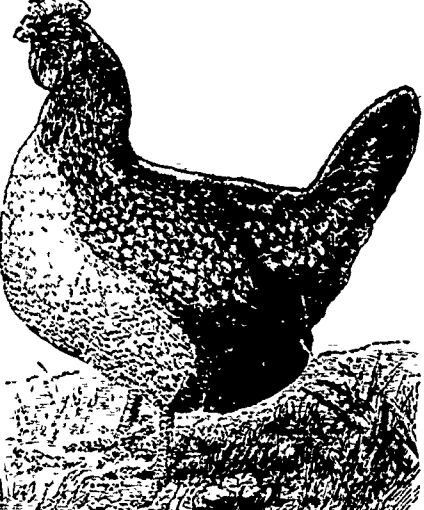
Poultry Yard.

Colored Dorkings.

Having treated of the general characteristics of Dorkings we will now describe that known to breeders as the colored variety...



who states that his model bird was a single comb Dorking without the least tinge of Malay about him...



Character, doubtless, chiefly attributable to too close interbreeding must be carefully guarded against...

The most preferable color of stock birds is dark in feather but showing a bright shaft nearly the whole length.

and white in the tail should be avoided as far as possible. The male bird should be descended from the same stock as the females...

Colored Dorkings are rarely good layers—but as sitters, perhaps they are the best of all fowls—on a dry soil with a good warm aspect...

The Penitry of 1872.

The concluding paper of this series Mr. W. J. ... writes, "I can say little about the Game class...

skilled and careful breeders as in Game, and in no class at any good show can such a good number of almost faultless birds be found giving rise to endless disputes over the correctness of the judging. After all that has been said regarding the change of style, or the difference between the old fighting and the modern exhibition birds, the breeders, the public, and the judges have given unmistakable preference to the high-bred, graceful, fine-boned modern style, and the real question seems to me to be, "Do any of us really want to bring back again the old cock fighting days?" If we do not, if our Game fowls are now to be preserved as exhibition and not as actually fighting birds, it is utterly impossible but that some amount of change should slowly and almost imperceptibly take place, for the simple reason that the handsomest bird will naturally be preferred. I have seen both kinds, and for myself I prefer the modern bird; those who wish to revive cocking may think otherwise. On the whole I should be disposed to say that Black Red and Duckwings have shown the best during the past season. Why no Silver-Duckwings are shown is a mystery to me, having only lately learned that there are birds of this beautiful variety still in existence; surely they would secure their fair share of honors in the cock classes at least, even if the dull color of the really true bred hen disabled them in pairs.

Amongst the Hamburgs I think I have seen better Silver-pencils than for some time, several hens having been exhibited with a rich lustrous black marking that left little to desire. The other marked varieties have been much as usual, but Blacks have to my fancy shown rather more of the Spanish than formerly in contour. Their faces have been free from the taint, but the light and graceful outline of the true-bred Hamburgs has been wanting in many prize birds. In Polish fowls, both Gold and Silver Spangles have advanced in richness and accuracy of marking, and on the whole I think in popularity. But the poor white crested Blacks seem dying out; scarcely any have been shown, in fact, only one or two really good pens have appeared. Delicate as they are, the loss of this breed would be regretted by all. Chamois have almost disappeared, but about them perhaps few would care much. Moreover, they can always be 'made to order' if wanted.

Two, at least of the French breeds are becoming more and more kept. Houdans retain their place, and increase in size and weight. I may note here a curious fact. When first imported the fifth toe was very uncertain, and many people thought it would be well to 'breed it out.' I myself hazarded the prediction that if this toe was finally 'fixed' in the breed we should have bumble foot; having long made up my mind that the affection in Dorkings was owing to this cause, and could not possibly be accounted for by the accidental ones usually alleged. Having had the curiosity to watch the result, I hear on almost all hands that bumble foot is now appearing in the Houdan race, though unknown at first, when the abnormal toe was less general, and hence we see the connection between the weakness of function and the excess of growth, a connection so frequent as to be well known to physiologists. Creve-Coeurs have gained ground immensely, have improved in freedom from foul feathers, and according to information kindly furnished me by various breeders, also in hardness; in fact they seem at last to be becoming acclimated, which at one time appeared very doubtful indeed. La Fleche appears a hopeless case.

Glancing briefly at the less popular breeds, Malays seem to have established a marked advance. More of them have been shown, and at least one hen has appeared on the scene which honestly deserves to be called large. We may see the old Malay again yet! and if we do, it will be much more popular than the little weedy things which have lately passed by that name. Sultans and Silkie have both shown a tendency to come into fashion. The white American Leghorn has firmly established its footing, and deserves it as one of the best if not the very best of layers known. It lays well as the Hamburg, but a much larger egg, and is harder and more adapted to moderate confinement. I notice a tendency to breed it with pale and short legs; this should be guarded against, spoiling the beauty of the fowl completely. Plymouth Rocks have also made their appearance on one or two occasions, and seem rather likely to be popular, I hardly know why, being inferior in my opinion, to the Dominique, which is in less favor; indeed, in what the Rocks differ from tall smooth legged Cuckoo Cochins it would be hard to say. They are, however, hardy and generally useful birds, and if they obtain a recognized place no one will grudge it to them.

Game Bantams still advance, being more like Game, and less like other Bantams in shape every year, indeed, a bird genuine Game in character

would now stand a hopeless chance. I think the young birds, in fact, can hardly perhaps be bred better; but even the best in most cases get 'stumpy' the second season and lose the gamey look which is so fascinating. In this direction there is much to be done, and it is being done; for more old kinds were shown with the required points than I can even remember. I once thought it hopeless, but I now expect to see them so improved that the old birds shall keep their shape and carriage like the real Game of which they are the miniatures. In other Bantams we have now a new Dark Japanese variety, said to be very hardy and a good breeder. Cochins seem dying out, which is a pity as the queer little creatures were always popular. Why don't the few who have them cross into something else and back again, and so restore the prolificacy and vigor of the strain? Blacks have made giant strides, I have seen some thirty entries in a class, and winning has become difficult indeed. Whites have increased too, and often claim a class to themselves; but the Rev. F. Tearle, still like a veritable Comte de Chambord holds his 'white flag' aloft with proud defiance. But I sigh for a breed I used to love and keep in days gone by, though never then an exhibitor—the exquisite White-Booted Bantam. I saw it once and only once last year. Let every man have his fancy, the world is wide. But to my eye the White-Booted Bantam, with his quaint little ways, is the nicest little pet of the lot. He will stand and cock his head at you like a canary, and he is almost the only bird you can trust in a garden. As to the Sebrights, the Golds have been getting so large, that while the laying is all that could be, if care be not taken they will soon not be Bantams at all. Silvers, real Silvers, it has often been said have disappeared. This season the average color has been worse than ever, and on one occasion I saw two pens side by side, one called Silver the other Gold with not a shade between them. It may have been a mistake, but it was at worst not a very exaggerated statement of the case. On the other hand, some half dozen times there have been shown pens of Silvers really startling in their clear white ground, and also with more blue in the ear-lobe than I can remember seeing for a long time. Let us only hope they may increase and multiply!!

Prize List—Provincial Exhibition, 1873.

Poultry.—We notice in this class that fowls are to be shown in pairs instead of trios, a decided step in advance of the course adopted for several years past, and in accordance with the views of the best breeders and fanciers in the Province. Exhibitors find it difficult even to match pairs for the show pen, much more so trios, and will therefore hail this change with pleasure. Other alterations might also be made with advantage; we cannot see why the Association should continue to offer a prize for "the best collection of poultry owned and exhibited by one person, &c.," except it be for the special benefit of those whose private means enable them to purchase largely from other breeders, and then exhibit in this class. If it were made a condition that the fowls thus exhibited, should also have been bred by the exhibitor, it might afford grounds for the advocacy of the continuance of this prize; but no such condition is appended. We regret also that the names of the judges do not appear; nothing gives greater confidence to the exhibitor than to know who are to be the judges of his birds. In connection with this we may mention a very remarkable case of partiality in judging, which occurred at the last Exhibition. A gentleman fancier was requested to act as one of the judges, but declined; he however, suggested the name of his son—a mere lad, to act in his stead, the suggestion was adopted and his son appointed. Previously the son had become possessed of a number of fowls of different breeds, given to him by his father, thereupon he sold these fowls to a third party, who, aware of the appointment, entered them in their respective classes for exhibition, thus enabling him to adjudicate upon his own fowls. Need we say he was biased in his judgment. Happily, however, the associate judges out-ruled "the lad," and but few prizes were awarded to the nominal exhibitor. Had the names of the judges appeared in the prize list, this would not have occurred.

The Apiary.

Samson's Lion.

Our friend R. M. Argo, of Lowell, Ky., has written us a brief dissertation on the above subject, with a view of correcting the erroneous ideas many readers of the Bible have, as to a swarm of bees being found in the carcass of a dead lion. Some, he says, take the language in its literal meaning, and believe that there were really bees and honey in the dead carcass before the flesh had been destroyed by dogs and birds of prey, which were numerous in that country. Mr. Argo states his own view as follows: "These bees, according to Kitto's Bible History, must have been identical with the Egyptian of the present day; and, as they were very numerous in Canaan at that time, and hollow wood was scarce, they were apt to take up their abode in any hollow cavity they could find, and as only a few days would suffice for flesh of the lion to become devoured by dogs and birds of prey, and the bones to become dry, it is natural and reasonable to suppose the swarms of bees established themselves in the cavity of the lion's skull, which is amply large enough for a swarm of bees." He adds, "If there is a better explanation, please give it."

While there are some credulous people who are quite willing to believe that these bees, contrary to their usual instincts, actually took up their abode in the decaying and putrid flesh of the defunct lion, there are others, who, knowing that bees will not even alight on a dead carcass, find a difficulty in reconciling the Scripture narrative with the well-known facts of natural history in regard to the habits of bees. Mr. Argo has no doubt indicated the right way of removing this difficulty, though we think he is wrong in supposing that the bees "established themselves in the cavity of the lion's skull." That would be too small a hive for an average swarm of bees, as even Mr. Argo must admit if he reflects carefully on the point. There is no reason to think the lion was one of unusual size. It is described as a "young lion," but this does not imply that the creature was immature or half-grown, as the original rather conveys the idea of a lion in his youthful prime and vigor. It was then, an average adult lion. Now how much of a cavity would there be in the skull of such a lion? We have looked up this question in some natural-history books, in the hope of meeting with actual measurements that might help us out, but have not succeeded in finding them. From an engraving of a lion's skeleton, contained in one of these books, we are convinced that the skull-cavity is quite limited in capacity. The head bones are very massive, to give that strength of jaw for which the lion is remarkable, while the brain is small, and flattened out broad and shallow, as in all creatures of the cat tribe. The cavity in question might hold one of Mr. Hosmer's quart stocks, but certainly would not accommodate a good, natural swarm.

There is, we think, "a better explanation." It is that the bees took up their abode in the body of the dead lion. Insects are very abundant in the east, and they fill, in a very short space of time, completely clear out all the soft parts of any carcass, leaving the skeleton entire, covered by the skin. It is not necessary to suppose that "dogs and birds of prey" ravaged the lion's remains. In a place far enough from towns and villages for a "young lion" to be prowling about, it is not likely that dogs, at any rate, would be numerous. We have only to suppose the skin left comparatively whole, and the flesh eaten and picked out by insects—especially ants, which are very numerous in Oriental countries—and the softer parts being removed, the bones and skin deprived of their moisture by the heat of the sun; and we have a hive which few swarms of bees would refuse to occupy. The skeleton would be covered with a sort of dry parchment, and, the interior clean, sweet, rosy and convenient, would be a likely place for a swarm of bees to enter and take possession of, especially in a secluded spot, among the grape-vines.

This is the view taken by Kitto, who says, "In the East, bees establish themselves in situations little thought of by us; many wild swarms being left to find homes for themselves, fix in any hollow which seems to them suited to their wants. Often in the clefts of the rock, whence the mention of 'honey out of the rock,' (Deut. 32:13); often in trees, whence the mention of the dropping of the honey-comb,—a singular instance of which we have in the case of Jonathan, who found honey dropping from the trees to the ground, on his way through a forest." (1 Sam. 14:25, 26.)

Whether the bees were "identical with the Egyptian of the present day" or not, is a point it is not

easy to settle. According to N. C. Mitchell, a stock of Egyptians would have given even Sanson some trouble, if he undertook to rob them of their store. But the lapse of three thousand years may have made some change in their disposition, and a variety of bees quiet enough to let Sanson rob them with impunity, may now, as the result of crossings and hybridities, have become of a more warlike turn. — *American Bee Journal*.

Our First "Swarming."

Not to experienced aparians do I relate the story. I would humbly beseech rather that they please to not listen. But if among lady bee-keepers there be one who knows as little practically, of "natural" swarming as did I on the morning of May 27th, 1873, "To her my tale I tell."

The morning was cold, cloudy, breezy, and I said to my sister Nellie, as we rose from the breakfast table,

"We shall not be able to drive the bees to-day. I fear."

"Will it matter?" she asked.

"Oh no," I replied, serenely and confidently "They will not think of emigrating under a week—their preparations are but just begun—and in cool weather they are better off as they are."

As the morning advanced the wind died away and the sky cleared. At noon it was bright, warm, and still. I noticed at this time that the bees at one hive were very quiet—scarcely a bee in sight, while at the other they were humming merrily. The first mentioned being the stronger colony, I worked it a little at the time; its real meaning was clearly apparent some hours later, especially after re-reading a forgotten passage from "Langstroth":—"If in the swarming season, but few bees leave a strong hive, while other colonies are busily at work, and a clear, calm, sunny, or windy day, with great confidence for a swarm, or so the weather prior, unfavorable."

An hour or so after noon, thinking that the bees were making an unusual and unnecessary amount of noise, I stepped to the door to see that at this but recently so silent a hive, there was now quite a commotion. Many bees were whirling about and over the hive, while others were pouring forth in an unprecedented way as to number and in a hurry. "Come forth in a very large stream," said I. The exciting before having been a clear, sunny day, I had shut the fly-holes, and somewhat contracted the lower entrance; and as the morning had been cloudy and the bees quiet, no change had as yet been made. Now, as I stood gazing on them, spell-bound at my first surprise, there flashed across my mind the query, "are they swarming?" But it was only to be at once dismissed. For didn't I know that they were not ready to swarm? Hadn't I looked into the hive but a day or two before, and found in the most advanced queen-cell only an egg?

My second and accepted thought was this, that the sudden warm sunshine had given a general impetus to honey-gatherers and young bees to go forth, and that the unusually narrow door-way excited and troubled them.

Still there was no cessation to the steady outward flow, and in larger and yet larger circles around and about the hive. *Something* must be wrong!

"Nellie!" I called piteously to sister in the next room, "I don't know what is the matter with my bees!"

She hurried to the door. "Why, they're swarming!" she exclaimed with decision.

That settled it. She spoke as one who *knows*, and my own rejected first impression came back with overwhelming conviction. They *are* swarming. What should I do?

I had no course of action marked out, because I had long before determined that my bees should not swarm. Most excellent care would I take to prevent that in these great woods, where, if they went beyond the clearing, it might be impossible to follow or to find them. I had a vision of them now, sailing off over the tree-tops beyond my reach, and I felt only that they must be stopped! now at once!

Suddenly I remembered to have somewhere read that the queen often does not come out before a third or half of the swarm has emerged. It was then possible, it might even be *probable*, that she was still in the hive. If so, she should either stay there or be captured at the entrance.

Seeing a pail of water I rushed forth hatless, veilless, gloveless into the midst of the throng of runways and began sprinkling them as they emerged. But first, with curious and absurd inconsistency—seeing how much faster they wanted to come out than was possible, and pitying their crowded discom-

fort, and so had two streams pouring forth instead of one! (Nellie will never forget, or cease to laugh at me for that performance, I fear.) They beat against my dress, they whirled by my ears, brushed my hair, and my cheeks, but I stood my ground, trying to watch both openings at once for the queen, and sprinkling the water more and more copiously, as I saw that it produced no effect. I was beginning to despair, for many bees were washed down and I didn't care to drown them, much less did I wish to risk crowning my queen. Just then came a happy inspiration.

"Hand me that wide board, quick! quick!" I cried to Richard, (who is a little afraid of bees.) He cautiously shoved it within my reach. Holding it so as to throw a shadow over the entrance I continued the sprinkling. The effect was magical.

"It is going to be something of a shower after all!" "The sun is under a cloud, and it rains faster than ever!" Telegrams of this import must have been sent through the hive in a twinkling, for all at once there was a sudden, an *alter* stop to the outward rush.

Then for the first I ventured to draw a long breath, and then, too, I began to question doubtfully, if it had not been a very foolish and useless, as well as an unsafe proceeding? Was the queen out or in? The bees that had been washed down were picking themselves up rapidly, and I soon became convinced that she was not among them.

But over our heads quite an army of bees were whirling and swarming, now this way, now that. Once we accompanied them half way across the woods, then back to the vicinity of the hive. Suddenly they separated widely and came down to the ground, very evenly scattered over a large surface. I knew that they had missed and were looking for their queen, and I wondered if their anxiety could be half as great as mine. Rising again, they again seemed starting for the woods. But immediately returning, once more they sprinkled themselves far and near over the ground, somehow, Nellie suggested, giving one the ridiculous impression of "going down on their hands and knees" to make an effectual search. Evidently it was to them in some way a satisfying one, for all now rose as by one accord and came hurrying back to the hive, pouring in as fast as possible and covering the whole front with a black sheet.

So soon as all had settled, we lifted the hive from its stand and placed an empty hive in its stead. Then, after arranging the frames and putting in two cells of brood and honey from the old hive, we (Nellie and I) began a careful search for her missing queenship. To our joyful surprise it was not a long search. We found her as composed and dignified in demeanor as though nothing had happened, and with very little trouble we transferred her to the new hive. We found several queen-cells, the most advanced containing the timid of worms.

It was then, I think, that I for the first time discovered that I had forgotten my bee-veil! Of course I walked into the house for it at once.

The rest of the work, the apportionment of the remaining bees—every bee was at home—was a somewhat perplexing business. However, I used all the judgment I had, and if the division was not made quite as well as the bees could have made it, everything has seemed to go exactly right with the new colony thus far. With the old colony, too, all was well until—but that belongs to another chapter.

Perhaps some one, as inexperienced as myself, may be interested to know that from first to last the bees were on their very best behavior, nobody was stung.

We found a nucleus from the other hive the same afternoon; for interesting, exciting, and on the whole satisfactory as this experience had been to me, I felt no desire to repeat the same with another swarm, and in conclusion would say that I do not venture to take the responsibility of advising any lady bee-keeper to take the course of action above described. — *Correspondent, American Bee Journal*.

WHITE CLOVER AS A HONEY PLANT.—An English writer says: White or Dutch clover is the queen of honey plants. It is widely cultivated in this country, and continues to flower a long time. In Scotland, the farmers use more white clover seed in laying down the land in grass than the farmers of New England, hence the clover fields are better there than here. And the use of lime and bone dust, as manures, has a great influence in the production of clover. In travelling to Edinburgh some years ago by the Caledonian line, whole fields white with clover flowers caught my eye, and made me take a second look to see if the whiteness came from daisy flowers. Whole districts, unsurpassed for excellence, met my eye during a visit to my native land, many of which hardly ever received a complimentary visit from bees, and for this reason, that there were no bee keepers in these districts. — *Mass. Ploughman*.

Miscellaneous.

Mammoth Public Park.

In compliance with an act of the last Legislature of New York, a State Park Commission was appointed to report on the advisability of occupying certain lands in the counties of Clinton, Essex, Franklin, Herkimer, St. Lawrence, and Lewis as a great public State Park. The names of the gentlemen composing the Commission are Horatio Seymour, Patrick H. Agan, William B. Taylor, George Raynor, William A. Wheeler, Verplanck Colvin and Franklin B. Hough. The Commission made a favorable report. The Park will be almost entirely in the Adirondacks, and include about \$34,000 acres, which will make it one of the largest parks in the world. It is now much frequented by tourists. Among the reasons given for preserving this large section in its present condition are the following:—

The Commission are of opinion that the timber should be preserved. They "do not favor the creation of an expenditure and an exclusive park for mere purposes of recreation, but condemning such suggestions, recommend the simple preservation of the timber as a measure of political economy. The conclusion that the permanent preservation of a large portion of this forest is necessary, is based upon numerous considerations intimately connected with the great business interest of the State." The condition of the land is described, and the numerous lakes and abundant game are referred to, all of which "gives to the magnificent scenery a strange, wild and romantic element, which has contributed to make its more accessible portions a choice summer pleasure ground for those of our people who travel, and who admire the natural splendors of their native land."

There is considerable mineral wealth in this region, but it is mainly confined to iron ores, and generally is found in the settled, cleared, and accessible portions of the country. Formerly all of the iron was made with the aid of wood charcoal. The result was that large sections in Essex County were entirely stripped of forest in order to supply the requisite charcoal. The mountains are to-day almost treeless, showing desolate flanks of naked rock; and some of the streams which once were trout brooks are now torrent beds, through which the water of each storm on the smooth sides of the mountains rushes swiftly off to leave them almost dry, instead of slowly percolating through a sponge of moss and tree roots, as a slow running, cold and constant spring.

The State of New York is a remarkable watershed. Northwardly its waters descend the St. Lawrence, at the south they descend the Hudson, and south-westerly they pass through the Alleghany, Ohio and Mississippi rivers to the Gulf of Mexico. Nearly every stream in this State starts from some lake or pond, from which, if in a forest region, it pours an unending stream; and it is to this system of lakes or natural reservoirs, hewn in the cool, primeval forest, that our State is indebted for that water supply which has created our canals and that steady water power which is the wealth of so many manufactures. It is also said: "We believe that the great Adirondack forest has a powerful influence upon the general climatology of the State; upon the rainfall, winds and temperature, moderating storms and equalizing throughout the year the amount of moisture carried by the atmosphere; controlling, and in a measure subduing, the powerful northerly winds, modifying their coldness and equalizing the temperature of the whole State."

The destruction of the Adirondack forest would have a calamitous effect upon the Hudson River. The deep winter snows accumulating upon the bare uplands would contain an immense body of water. Spring would suddenly release this water, when it might rush at once down through the valleys to the sea. The immense mass of water, hurled furiously into the narrow valley of the Hudson, would sweep before it fields of ice, to crush and sink the strongest vessels, and ruin the warehouses on our wharves. While the Adirondack forests remain, these deep snows will be protected from the direct rays of the sun in spring, and will slowly and gradually melt away."

It is also urged that we should preserve the timber

for future use; and that its effect upon the general healthfulness of the State is great; and that—

"The philosopher Boyle long since remarked that in the Dutch East India islands of Ternate, long celebrated for its beauty and healthfulness, the clove trees grow in such plenty as to render their produce almost valueless. To raise the price of the commodity, most of the spice forest was destroyed. Immediately the island—previously cool, healthy and pleasant—became hot, dry and sickly, and unfit for human residence. It is well known that the general clearing away of the forests in this country has had a tendency to raise the temperature, which in summer reaches such a height as to be barely endurable. In our cities these great heats—acting upon garbage in those miserable quarters which are but cesspools and sinks—give rise to the probable source of cholera and other epidemics, the foul miasmatic effluvia which could not exist in the presence of living vegetation. Anxious to escape, our citizens hasten either to the country, the seashore, or the mountains, while those whose vocations will not permit their absence, find a pure air in the semi-rural suburbs, or in those elegant parks which modern culture and civilization have come to consider indispensable in any city."

A summer residence in the Adirondack wilderness has been found so favorable to health that many now come from a distance, though the mass of travel comes from New York, Philadelphia and Boston. It is thought that leases of woodland points in lakes, and of islands near certain favorite localities, to citizens who would erect villas or hunting lodges, would give a considerable income, and more than repay any expenditures which would be needed. There is no need, however, of any considerable outlay, save, possibly, in the improvement of a few of the principal roads leading to the settlements. "The forest is in itself a natural park, and it would be improper to think of fencing it, for it should be common to the people of the State."

In conclusion the Commission state that the question is one of great importance, and requires their further consultation. At present they deem it advisable, and recommend that the wild lands now owned and held by the State be retained until this question is decided.—*Cor. Country Gentleman.*

Fresh Eggs, Fresh Fish, Fresh Butter.

These three articles are only good when they are as described, fresh. Then they are royally good. Yet seldom is it that they are so obtained. An egg is not fresh when it is two or three days' old. Kept but a day in hot weather, and there is a difference; already incubation has commenced. An egg should be eaten the day it is laid. It is much the same with butter. A fish a few hours in the sun is seriously hurt. An egg may be impaired by bad food, by filthy air or water. The different kinds of food have an influence. Corn, with some other clean feed, will give good flavor—will impart that peculiar sweetness which distinguishes a good egg from an ordinary or poor one. Tainted food in all cases should be avoided. This is our experience, independent of what the books say. A fresh egg, perfect in flavor and quality, cooked with butter equally good, is a treat—and a rarity. In each family, if possible, should have a few hens to ensure this dish for the table. It is not enough, though a favor, to have access to a henry which furnishes eggs for the market. They are seldom all good or of the first quality. Each family should furnish its own eggs, as it can be made all the more profitable where but a few hens are kept. From half a dozen to a dozen will generally do this, and it will do in winter and summer if rightly managed. Have warm, well-lighted quarters in winter; with plenty of space; food sufficient and of good quality; making corn, or corn and buckwheat the basis; pure fresh water, clean quarters, a place to securely lay the eggs, a convenient place to roost, and let the breed be, for eggs, non-sitting, winter-laying and young hens. A spring chicken, properly kept, will lay the following fall and winter. Its flesh will then (in the spring) be tender; or it may be continued to lay till fall, and still answer the same purpose for the table. It is better, however, to get a brood in the winter for summer laying. The one great element in successful hen-keeping is, to make your fowls contented and happy. Like the cow, the hen has a domestic nature. She must feel herself at home, unscared, well attended to, and then she will work for you.

Those are happy people who have a fish pond to draw upon whenever they wish. They are rarely privileged if this is a trout pond, which it may, in many cases, as well be as any other. Take your fish when you want them. Prepare them for the table when the life is yet in them, or immediately after serve up and eat at once. Do not cook too long,

and from the hot pan transfer to the plate, smoking, steaming hot, the plate also and invariably hot. If, in preparing either eggs or fish, butter made the same day, and made rightly throughout, is used, the dish is perfect, and it is as rare as it is perfect. And all this may be had, and is had, without any additional expense save in the trout pond.—*Cor. Country Gentleman.*

Cultivation of the Mind.

To the farmers we would say, fertilize your mind as well as your land that the plough may be driven over and through it. The gliding of wheels is easier and more rapid, but only makes it harder and more barren. Above all, in the present age of light reading—that is, of reading hastily, thoughtlessly, indiscriminately, unfruitfully—when most books are forgotten as soon as they are finished, and very many sooner, it is well if something learned is cast into the midst of the literary public. This may scare and repel the weak; it will arouse and attract the stronger, and increase their strength by making them exert it. Remember, that in the sweat of the brow is the mind, as well as the body, to eat its bread.

Capital and Labor.

I did say that I should bury myself in my books, and that a certain individual, whose name I shall not write on the present occasion, "might pipe to his own." But I cannot resist quoting a bit of a speech from a Wesleyan paper some friend in London was kind enough to send me. It seems very appropriate at the present time, when laborers are striking against their Queen, who is so kind to them, and embodies my own sentiments pretty well. This rev. gentleman—I have forgot his name—at the last May Meetings said: "Working men were becoming avaro of their importance; everywhere there were signs of coming mischief from the lower strata of society. The relations between capital and labor were assuming a very serious aspect; even the agricultural laborer had discovered the power of combination, and all these things, with the increasing knowledge of the working classes and their loud assertion of their rights—rights which in some cases had been too long ignored—rendered it of more importance than ever that education should be not only physical and intellectual, but also moral and religious. (Hear, hear.) As he thought of the evil counsels to which these men were exposed, he could not help but quote the lines of Longfellow—

There is a mighty Samson in this land,
Long without strength, and bound by bands of steel,
Who may in some prime season raise his hand,
And shake the pillars of our common weal,
Until the temple of our liberties
A shapeless mass of wreck and ruin lies.

Now, more than ever, then, was there need to train children in the knowledge of the Scriptures and in the fear of God, for those who had been taught to rest in confidence on Divine providence and grace, and who had joined most earnestly in thanksgiving to God, would put more heart in their formula when called upon to sing "God save the Queen."—*Old Farmer's Note Book.*

Carpets, though bought by the yard, are worn by the foot.

Civilized cannibalism—eating your bread with a little Indian in it.

A boy defines salt as "the stuff that makes potatoes taste bad when you don't put on any."

A student, undergoing his examination, was asked what was the mode of action of disinfectants. He replied: "They smell so badly that the people open the windows, and fresh air gets in."

It is given to some women to see a point clearly and state it comprehensively. For instance, an Iowa woman concludes a sarcastic article on female suffrage, thus pointedly: "You may look at this matter in whatever light you will, but simmer it down, and it is but a quarrel with the Almighty that we are not all men."

A parent in West Chester, who has fifteen daughters, has poisoned his dog, taken the locks off the doors and hung rope ladders over his door-yard fence by the dozen, and still his provision bill is as large as ever.

A dog suit, in which Caleb Cushing was plaintiff, was decided at Washington, D. C., on Thursday, in Mr. C's favor. The court declared the dog a nuisance, and ordered it to be killed or removed, and the nominal defendant, Kelly, to pay into court \$25 as security that the judgment should be executed. The real owner of the dog is said to be Fernando Wood. Mr. Cushing claimed \$4,000 damages. The nuisance consisted mainly in making "night hideous" by continuous barking.

There is a choice of methods in bringing up children in the way they should go. An agricultural laborer of England being remonstrated with by the pastor for not "bring up" his boys as he should, replied: "I dunno how 'tis, sir; I order 'em down to pray every night and mornin', an' when they won't go down I knock 'em down—and yet they ain't good!"

Rats have an unaccountable fondness for the taste of phosphorus, and to this fact may be attributed the origin of many mysterious fires. These rodents build their nests of inflammable materials, and take to them any stray matches that they find lying around loose. This accomplished, they undertake to gratify their appetite by nibbling the coated ends of the matches, which are at once ignited, when the nest is set in a blaze, and the destruction of the house which contains it follows.

An agricultural paper says: "A sensible correspondent of the *Maine Farmer* says he made up his mind years ago that every snake that is killed by the farmer is money out of the pocket of the snake killer; for he firmly believes that when the snake is looked upon in its true light in relation to the farmer, the conclusion will be that that individual has but few better friends than the despised snake." We have endeavored to look upon a rattlesnake in its true light, and always come to the conviction that the animal ought to be killed.

DUTY OF AGRICULTURAL PAPERS.—The *Turf, Field and Farm* forcibly says:—None of the agricultural discoveries and improvements of modern times, whether at home or abroad, escape the vigilance of the numerous and ably-edited periodicals devoted to that interest, and these make them known to the remotest limits of our empire. This is certainly a service of incalculable value; but there are steps beyond this which they should not hesitate to take; and these are to teach the farmers the politics of agriculture as distinguished from party politics—teach them that the same co-operation which enables a political party to sweep all opposition before it would enable the agricultural interests to assume its natural position, as the leading, and not the subordinate, interest to all others, as it is now.

TANNING AND DYEING SHEEP-SKINS.—A correspondent of the *Scientific American* gives the following plan for tanning and dyeing sheep pelts: Wash the pelts in warm water, and remove all fleshy matter from the inner surface, then clean the wool with soft soap, and rinse the soap thoroughly out. Secondly, apply to the flesh side, the following mixture for each pelt: Common salt and ground alum, one-quarter pound of each, and half an ounce of borax. Dissolve the whole in one quart of hot water. When cool enough to bear the hand, add rye meal to make a thick paste, and spread the mixture on the flesh side of the pelt. Fold the pelt length-wise, and let it remain two weeks in an airy and shady place, then remove the paste from the surface; wash and dry. When nearly dry, scrape the flesh side with a knife. Working the pelt until it becomes thoroughly soft. A beautiful blue may be imparted to the wool by using the following recipe: Add a wine-glassful of sulphuric acid to a gallon of water. Put into the solution a table-spoonful or more of imperial blue, regulating the quantity of the dyestuff to the shade of blue required. Put in the pelts and boil for ten minutes. After boiling, the pelt will need working again to make it soft.

LEAF PHOTOGRAPHS.—A very pretty amusement, especially for those who have just completed the study of botany, is the taking of leaf photographs. One very simple process is this: At any druggist's get a dime's worth of bichromate of potash. Put this in a two-ounce bottle of soft water. When the solution becomes saturated—that is, the water has dissolved as much as it will—pour off some of the clear liquid into a shallow dish; on this float a piece of ordinary writing-paper till it is thoroughly and evenly moistened. Let it become nearly dry, in the dark. It should be of a bright yellow. On this put the leaf; under it a piece of soft black cloth and several sheets of newspaper. Put these between two pieces of glass (all the pieces should be of the same size), and with spring clothes-pins fasten them all together. Expose to a bright sun, placing the leaf so that the rays will fall upon it as nearly perpendicular as possible. In a few minutes it will begin to turn brown, but it requires from half an hour to several hours to produce a perfect print. When it has become dark enough, take it from the frame and put it in clear water, which must be changed every few minutes, till the yellow part becomes perfectly white. Sometimes the venation of the leaves will be quite distinct. By following these directions, it is scarcely possible to fail, and a little practice will make perfect. The photographs, if well taken, are very pretty as well as interesting.—*To-Day.*

Advertisements.

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Will take place at noon, on THURSDAY, 18th SEPT. 1873, When there will be sold without reserve

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Bow Park, 15th July, 1873. 10 14

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G. MURTON, Secretary. JOHN HOBSON, President. Guelph, July 26, 1873. 10 14 11

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LONDON, Ont., Jan. 21, 1873. GENTLEMEN,—Having used the Bone Superphosphate manufactured by the Western of Canada Oil Lands and Works Company, I can bear my testimony to its excellence as a good fertilizer. I tried it on grass land, celery, and also on the green-house plants. The result has surpassed my expectation, particularly on the celery plants. I can highly recommend it to any that have not already used it. I am, yours obediently, JOHN BARRON, Gardener to the Hon. John Corling, SPRING HARBOR, WESTMINSTER, March 13, 1873.

GENTLEMEN,—The ton of Superphosphate I purchased from you last season I applied to grass lands, and was well pleased with its effects, notwithstanding the very dry and unfavorable season. I am convinced of its being a valuable fertilizer. Yours truly, JOHN B. TAYLOR.

Lot 5, Con. B., Gore Road, LONDON, ONT., March 12, 1873.

GENTLEMEN,—The Bone Superphosphate I purchased from you last spring was used on "Corn." The yield was fully one third more where the Bone Superphosphate was used, and was better in color and quality. I expect to derive equal benefit by using it on my wheat this spring. It is the best artificial manure I have ever seen. I am, yours respectfully, GEORGE PLANTON, WESTMINSTER, Feb., 1873.

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