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## The Field.

### Compost.

An admirable essay on the above subject, was recently read before the Connecticut Board of Agriculture, by Mr Alexander Hyde. It is too long for insertion in our columns without abridgement, though its excellence would amply justify its transference entire. This however, being impracticable, we shall give the pith and gist of it, for the most part in our own words.

The farmers of New England, like those of this country, have learned by a costly experience, how hard it is to restore its lost fertility to an exhausted soil. Mr Hyde very appropriately likens it to the convalescence of the human body from disease, and quotes in regard to it the proverb, "sickness comes a horseback, and goes away afoot." Fortunately however, the land, does not like the human body, die of abuse, disease and age. There is a remedy for all the ailments of the soil.

Having urged the necessity of draining all the water-logged land, Mr Hyde proceeds to enquire—What is the nature of the food our exhausted soils require, and in what manner shall we deal it out? Shall we dose them in homœopathic style? Shall we carry our concentrated manures on to the fields in saddle-bags, as some theorists recommend, or shall we deal it out in good old scripture measure, in cart loads, full, pressed down, and running over? The essayist in a very sensible and forcible manner, pleads for the old-fashioned style of manuring plentifully, expresses doubts as to the value and efficacy of much be-praised concentrated fertilizers; and states that having tried dealing out pabulum to plants by the spoonful, he is quite convinced that feeding them by the shovel-full is much better.

There are two serious objections to the substitution of artificial for barn-yard manure. The first is that they generally contain only two or three elements of plant-food, while barn-yard manure furnishes all those elements in great abundance and variety. Artificial fertilizers operate as stimulants, increasing production wonderfully, for a short time, until certain properties of the soil are exhausted, when they suddenly fail of the desired effect. To keep land in good heart, we must return to it not one or two elements of fertility merely, but all the elements that are taken off in the crops. As occasional stimulants, patent manures may be used to advantage, like patent medicines, but we must have a more substantial dependence for the food which is needed to sustain vegetable life. The other objection to the substitution of these things for barn-yard manure, is found in the fact that one great object of applying manure to lands is to put it into a suitable condition mechanically for growing crops to the best advantage. The soil needs to be in such a state that it can read-

ily absorb nutriment from the air, and also allow the young plant free opportunity to forage with its roots, for all the food to be found in the bosom of mother earth. It is wild and visionary to expect that we ever shall be able to dispense with those coarser and bulkier manures, on which in all past ages, agriculture has placed its chief reliance.

Nature, in preparing its rich stores of plant-food, teaches us a lesson we should be quick to heed, namely, that of composting. The word "compost" means placed together, mixed, a compound. This is the character of soil of every kind. It is a compost made up of many varieties of disintegrated rock, together with much decayed organic matter. The renewal and improvement of the natural soil go on according to the same system. The diversified vegetation of the earth decays, and, mingling with the remains of the higher animal organizations, forms an immense compost on the surface of the earth, varying in depth from a few inches to many feet, but rich everywhere with the multiform elements of plant-food. There is, however, much left for man to do in this direction. Marl, sand, clay, peat, muck, and all sorts of decomposing substances, are to be brought together and commingled by the skilful industry of the tiller of the soil.

Some will ask, what is the use of composting barn-yard manure? Why not haul it directly from the stables to the field, and let the composting be done by the plough and harrow? To what purpose is the extra labor of composting? Is the manure any better for it?

In reply to these queries, it is admitted that green manure may sometimes be ploughed in to advantage. When the soil to be dealt with is a strong clay loam, and the crop to be grown is a grass-feeder, like Indian corn, this course may be adopted with some saving of labor. But even in this case it is well to harrow in some well-rotted manure on the surface, or put a little in the hill, to aid the young plants in getting a start in the world. As a general rule, it is better to compost all manure before applying it. Several reasons may be given in support of this opinion and practice.

Manure is the food of plants, and requires to be decomposed, so as to be either soluble or gaseous, in order that it may enter the pores of the rootlets, and become part and parcel of the delicate structures it is meant to nourish. In the crude, coarse condition in which it exists before undergoing fermentation and putrefaction, manure is unfit to be assimilated by the organs of plants; and though it may be buried in the soil, it lies there as an inert and useless mass, until slowly disintegrated and incorporated with the soil.

Another reason for composting is the use that can be made of the fermenting manure to produce like fermentation in surrounding material. It is analogous to the operation of a little yeast in the housewife's bread bowl. Muck mixed with fermenting manure becomes quickly infected with a similar ten-

dency to decompose. "A little leaven leaveneth the whole lump." There is therefore a multiplication of the valuable material. The gases evolved in the process of decay impart fertilizing properties to other matter, and convert them also into manure.

There is reason to believe, also, that additional virtue is acquired by manure in consequence of the fermenting process, just as additional nutriment is gained by flour as the result of composting it with yeast and water. Chemical changes take place; and all who have watched the action of well-fermented manure must be satisfied that it is much more efficacious than green manure.

The complete destruction of all objectionable seeds is another sound reason for composting. Green manure is always more or less infested with the seeds of grasses and noxious weeds; and these, germinating in the land, spring up, to the great annoyance of the husbandman. The importance of clean cultivation, and the great saving of labor effected by keeping foreign seeds out of the ground, render this a sufficient argument for composting, even if no other could be urged in its favor.

Compost may be formed in a variety of ways. It is like hash, which may be made of fish, flesh or fowl, with potatoes as a kind of base of operations. Muck, or some substance abounding in vegetable matter, as leaf mould or sods, in like manner is a good base of operations for a compost heap. Muck beds are to be found almost everywhere. This material, when dry, has great power of absorption. It is also a wonderful deodorizer. The carcass of a dead cow or horse, covered up in dry muck will gradually decompose, without any offensive odor. Composting may be done on the spot where the manure is dropped. Dry muck or dry loam is a most congenial bedding for all kinds of stock, and there is nothing better for keeping the air of a stable pure. This will absorb the liquid manure, and if thrown out with the solid excrement into the cellar, will make first-class compost. The use of muck or loam in horse-stables will also antidote the "fire-fanging," by which so much valuable manure is injured and subjected to loss. Muck or loam in the hog-pen, hennery, water-closet and barn-yard, will save and decompose large quantities of fertilizing material, that would otherwise go to waste.

Besides these and such-like home resources, the farmer may avail himself of outside helps to the compost heap. Wood ashes, leached or unleached, may be advantageously mixed with muck and other substances. Plaster is another useful ingredient. All the wash of the kitchen and chambers, all the old bones and woollen rags, every description of refuse, that will decompose, ought to find a place in the compost-heap. There is no better material than night-soil with which to season a pile of muck. Refuse salt from the grocery; old fish, beef and pork brine; the waste of tanneries, paper or woollen mills; chip dirt; old boots and shoes; all manner of odds and ends that can be reduced to decay, are welcome additions

to the fermenting pile of fertilizing matter There is constant opportunity in the great laboratory of nature to convert death and decay into useful and valuable forms of life, and transform deleterious substances into means of promoting health and wealth.

**The Growth of Heavy Oats.**

It has often struck us as being not a little remarkable that there should be so many light-weight oats in the market for England, Ireland, and on the Continent. A great portion of this crop will be found to weigh under 40 lb. the bushel, and indeed 38 lb. seems to be the more general weight of the market. In Scotland—as this grain is grown for human food—the case is different, as there the crop is grown in the best soil, and like other grain crops, great care is taken in the cultivation of the oat. It may then be taken to be an established fact, that oat growing as horse and cattle food is not practised with sufficient care to obtain the best results; and we shall therefore offer a few remarks upon the principles to be attended to in attaining different results.

Of all our cereal crops, the oat is the one whose origin is the most clearly established. In the course of a few years, with care, attention, and selection of the wild oat (*Avena fatua*), we succeeded in obtaining very fair crop oats, and while doing so we watched the degeneracy of crop oats into wild ones. Now the grain of *Avena fatua* in its natural state weighs but 14 lb. to the bushel; but by choosing the heaviest seed to carry on our experiments, we arrived in six years at a grain weighing 38 lb. per bushel, and subsequent experiments, presently to be detailed, convince us that far better results might have been arrived at from this stock.

But, in considering the weight of oats, it is necessary to point out that the poorer the oats the greater the disproportion in the relative amounts of meal to husk—the former, indeed, increasing with the increase of weight of the samples. In an article on the Composition of Oats in Morton's Cyclopaedia of Agriculture, by Dr. Voelcker, we find the following:—"The proportion of husk varies in different samples of oats, more than in any other of our generally cultivated cereals. Not only is the quantity of meal produced by different kinds of oats very various, but different samples of the same kind furnish different quantities of husk and meal, according to the mode of culture, season, soil, and manure."

Boumains	obtained	....	78	of meal
			22	of husk (air-dry)
Herrnstadt	"	....	58.8	of meal (dry)
			34.2	of husk (dry)
			7.0	of water
Vogel	"	....	60	of meal
			34	of husk (air dry)
Norton	"	....	76.23	of meal
			23.63	of husk (air-dry)

Now these figures are sufficiently expressive of differences, but they do not point to the important fact of the sorts operated upon—a point which is more clearly settled by the following:—Dr. Voelcker obtained.

From black English oats	.....	283	lb. of meal.
		71	lb. of husk.
From white Scotch oats	.....	333	lb. of meal.
		66	lb. of husk.

Here, then, in Scotch oats, which the analysis shows to be good, the meal is, as near as may be, half the weight of the husk; whilst in the poorer black oat the meal is a little over one-fourth of the seed, nearly three-fourths being husk.

Now, as these estimates do not mention the weights per bushel of the grain operated upon, we determined to make a careful analysis of these parts in oats of our own that we could weigh, and we got the following results:—

From black Tartarean oats, 40 lb. bushel:	
From the farm, obtained from 1 meal	... 23 gralus.
100 seeds.....	16 " " "
From white potato oats, 60 lb. bushels:	
From the farm, obtained from 1 meal.....	40 gralus
100 seeds.....	20 " "

These great differences point to the ease with which the separation of meal and husk was done; in fact, the husk was separated from each seed so carefully that no amount of powdering or grinding could do it so effectually. The difference between 44 and 60 points to the difference in size of the thin grain of the black, and the plump grain of the white oats, and the fact of the latter, which weighed 50 lb. per bushel, yielding two-thirds meal, shows the great value of the better kinds when compared with poorer ones.

It was, then, the wide difference to be observed in the oat crop that induced us to look carefully to the results in each crop, and if possible to trace the cause,

and in so doing we seem to have arrived at the following conclusion:—

1. Light seed, say from 38 lb. to 40 lb. per bushel, will produce a light grain for two reasons—(a) the quality of the progeny will usually be that of the parent; and (b) thin oats have twice the number of seeds to a given measure than plump ones; and in order to test this we counted an ounce of each of the following, measured in a tall, thin, upright measure 1 oz. of potato oats, 50 lb. bushel, gave 384 seeds; 1 oz. of Waterloo oats, 44 lb. bushel, gave 628 seeds. Here, then, while two bushels of the first, as seed to the acre, would be thin sowing, the same quantity of the latter would be thick seeding.

2. The best and heaviest seed that can be procured is the cheapest to sow, as it will not be too thick at the same rate of sowing, and each seed will be likely to bring a strong plant, and thus to produce a good measure of heavy seed.

3. In our practice we have found that the heaviest oats used as seed not only produce a crop of like character in this respect, but also a greater measure per acre. Here, however, we confess that some of our neighbors disagree. They say that they can produce sacks more per acre of poor black oats than they can of heavy white ones, and hence any quality is to them good enough for seed; at the same time, when we come to ask if they have ever gone to the expense of the best white seed, we are bound to confess that in no case have we obtained an affirmative answer.

We have a lively recollection of a neighbor sowing Waterloo oats, in a field adjoining ours, with a crop of potato oats. Well, at harvest time our friend remarked, "Your oats are as good again as mine; what can be the cause?" On looking into them the cause was soon visible; to every two of our tall stems, of the size of good strong goosequills, there were in our neighbor's field ten goosequills. We therefore suggested that they were too thick: when it came out that, because it was a thin, poor sample, somewhere about a sack and a half of seed had been drilled to the acre, while our own crop was drilled at the rate of two bushels to the acre—not of thin, poor seed, but of plump seed weighing 48 lb. the bushel.

In sowing oats, then, we always procure the best and heaviest seed we can; and we further make a rule of again and again screening all the smaller grains from the bulk; and the result is that, though we do not point to pedigree oats, yet by using the best seed in the market, and selecting, as it were, only the best from this, we always secure a good crop of this grain, far superior in weight and quality to that of any of our neighbors.—*Field.*

**New Potatoes—Potato Culture.**

Being one of the successful competitors for the \$500 premiums offered by B. K. Bliss & Sons, in the spring of 1873, for the largest quantity of potatoes grown from one pound of tubers planted, I have received numerous letters requesting me to give my views of the best varieties of potatoes for general cultivation, and also my mode of cultivation. If you think this will be of interest to your readers, you will perhaps confer a favor on those who are anxious to know which are the best among so many varieties advertised. All are best in the eyes of their respective advertisers. (I have no potatoes for sale but what I can sell in my own vicinity.) I have tested all, or nearly all, of the new varieties that have come out in the last five years. I have been very successful in my endeavors to test the real merits of the different varieties now before the public, and I will give my opinion as to the varieties which I think are best for general cultivation.

The first is Extra Early Vermont. For an early potato, it is decidedly preferable to anything I have ever tested. It is at least ten days earlier than the celebrated Early Rose; far superior to it in quality and yield; perfectly free from disease, and in fact in every way a most valuable early variety.

The next I would recommend is the Ice Cream. Out of seventy-three varieties that I tested the past season, the Ice Cream was third in productiveness, and fully equal to any in quality and flavor. There is one feature in this potato that will make it a universal favorite with the farmer, especially in the west, and that is, it is almost entirely exempt from the ravages of the Colorado beetle. They will not disturb it as long as there is a stalk of any other variety in the vicinity. The Ice Cream is a late variety, and matures with the Peerless.

Carpenter's Seedling is a potato that I can recommend as a variety which I think is worthy of more than a passing notice. It combines the qualities of the Rose with those of the Peachblow. For earliness, it is fully equal to the Early Rose, and has the keep-

ing quality and splendid flavor of the Peachblow. In fact, if I were to be confined to a single variety, I should select Carpenter's Seedling in preference to any other I have ever tested. It is a bountiful cropper, and in every way worthy of general cultivation.

New York Late Rose is another favorite with me, but it is so well known by this time that it would be useless to give it a special recommendation; but I consider it a valuable variety.

**My Mode of Culture.**

In the first place, I select the lightest soil I have, one year in advance. If poor, I give it a liberal dressing of barnyard manure; turn it under very deep, then sow on some green crop, such as wheat, rye or oats, and plow under before it gets so large that I cannot cover all with the plow. I let it lie over until spring; then harrow smooth, mark each way three feet apart; select the most perfect tubers, cut to single eyes and drop from one to two eyes in a hill; then make a compost of salt one part, slaked lime two parts, unleached wood ashes four parts; put one good sized handful in each hill; then cover all from four to six inches deep, according as the season is wet or dry, the dryer the soil the deeper the covering should be; keep the weeds down and the ground mellow with the hoe and cultivator until just before the blossoms make their appearance; then hill up broad and flat, slightly cupping towards the vines, in order to hold all light showers of rain; keep the weeds down by cutting off or pulling up. I do not disturb the ground after this time, as it would injure the young tubers that are then in process of formation.—*Cor. Country Gentleman.*

**The Barley Crop.**

The prevailing question with farmers at present is, shall we sow barley or oats? With the advancing price for seed of the former, will it pay? We have a case of a friend, who a few years since paid \$2.50 per bushel for seed, and sold the crop produced therefrom for five dollars less than the cost of seed. As the price of any farm product is governed by the law of supply and demand, we may safely predict that the price of the next crop will not be very remunerative.

So long as we shall continue to raise barley for market only, it will continue to fluctuate in price; but when we come to appreciate it as one of the most important of the cereals for feeding stock, and that it exhausts the soil the least of any of them, we shall understand its full value, and give it that stability in market realized by the other leading crops.

Let us first consider its value as food for stock in place of oats and corn. Our experience has demonstrated that it has more flesh-producing elements, pound for pound, than corn or oats. It may be said that we can raise two bushels of oats to one of barley. We admit this to be true as a general rule, but claim that one crop of oats will exhaust the soil as much as two crops of barley. In the two crops of barley we have ninety-six pounds of feed to sixty-four pounds of oats. Do we not gain something in retaining the fertility of the soil for the following wheat crop?

As to the question of proof relative to the exhaustion of soil, we give two or three points that have come within our observation:—1. Oats produce more straw in proportion to grain than barley. 2. Barley derives more of its nutriment from the atmosphere by means of its broader leaves. As proof of this, apply plaster to the two crops, under equal conditions, and it will benefit the barley much more than the oats. 3. Barley matures before the intense heat of summer, while oats continue to grow through the hot, dry season, thereby exhausting the strength of the soil. 4. Barley is out of the way of necessary preparations for the wheat crop much sooner than oats. 5. Barley is the best crop to seed with that we ever had any experience with.—*Cor. Rural Home.*

**JERSEY FARMING.**—In the Island of Jersey, three to ten acres is considered a very respectable farm, and many families reside on an acre or less, keeping a cow, and some pigs and poultry. Lands rent from \$25 to \$50 per acre in our currency, necessitating strict economy in their management. On a farm of twenty acres, one-half is kept for hay and pasture, the balance cultivated in wheat, potatoes, carrots, parsnips, mangolds, turnips, etc. The stock usually kept consists of two horses, six cows, six heifers, and eight pigs. Two men and two women are constantly required. Although large quantities of potatoes, fruit, etc., are exported, horned cattle are the mainstay of agriculture. Col. Waring estimates the number of Jerseys on the Island at upwards of 12,000, or about one to every two acres of agricultural land.—*Live Stock Journal.*

## Grasses and Forage Plants.

### Timothy Grass.

This widely-cultivated and highly-prized grass is known among botanists by the Latin name *Phleum Pratense*. Its common name is derived from a person named Timothy Hanson, who cultivated it largely, and was the means of its introduction into Maryland and the Carolinas. It is usually called *meadow cat's tail grass* in Britain, and sometimes, both there and in this country, it is styled *herd's grass*. The application of this latter name to it is the cause of some confusion in Pennsylvania and the States further south, where it is common to call red-top *herd's grass*.

The scientific description of this grass given by Flint is as follows.—“Spikes cylindrical or elongated, glumes hairy on the back, tipped with a bristle less than half their length; leaves long, flat, rough,

in size, to show the general habit of this grass; and Fig. 4 is a specimen of portions only, the base and head, but little smaller than the average natural dimensions. The seeds are easily separated from the husks when ripe, very small, somewhat globular, heavy, and of a light, silvery color. The small figures 1 and 2 represent the seed enclosed in the husk, the first of the natural size, and the second magnified. Fig. 3 shows a single flower, magnified, consisting of corolla, anthers, and stigmas, the seed vessel being enclosed in and concealed by the corolla.

Timothy requires a rich soil in order to yield heavily, and nowhere does it flourish more luxuriantly and produce more bountifully, than on the newly-cleared lands of the North American Continent. Grown in such soil, abounding in stores of the most nutritious plant-food, this grass attains a wonderful height, and makes a very fine appearance in the blossoming stage. If, however, allowed to become too ripe before cutting, a mistake into which new

unrivalled excellence. This grass will grow on a variety of soils, but thrives best on those which have both tenacity and moisture. It is not suited to sandy or light gravelly lands, for though by means of painstaking culture, it may be made to grow and produce fair crops, other grasses can be grown to better advantage on such lands. It takes readily, and yields largely on suitable soils, as much as four tons to the acre having been mown in some instances. When grown for seed, from ten to thirty bushels per acre, according to the strength of the land, are obtained.

We do not consider it advisable to pasture meadow land in the spring of the year, but in some cases it is unavoidable, and when it is so, timothy suffers less from this treatment than most other grasses, owing to the fact that its flowering stems are somewhat late in starting. It yields a heavy summer cutting, and is worthy of being more generally used for soiling than we find common.

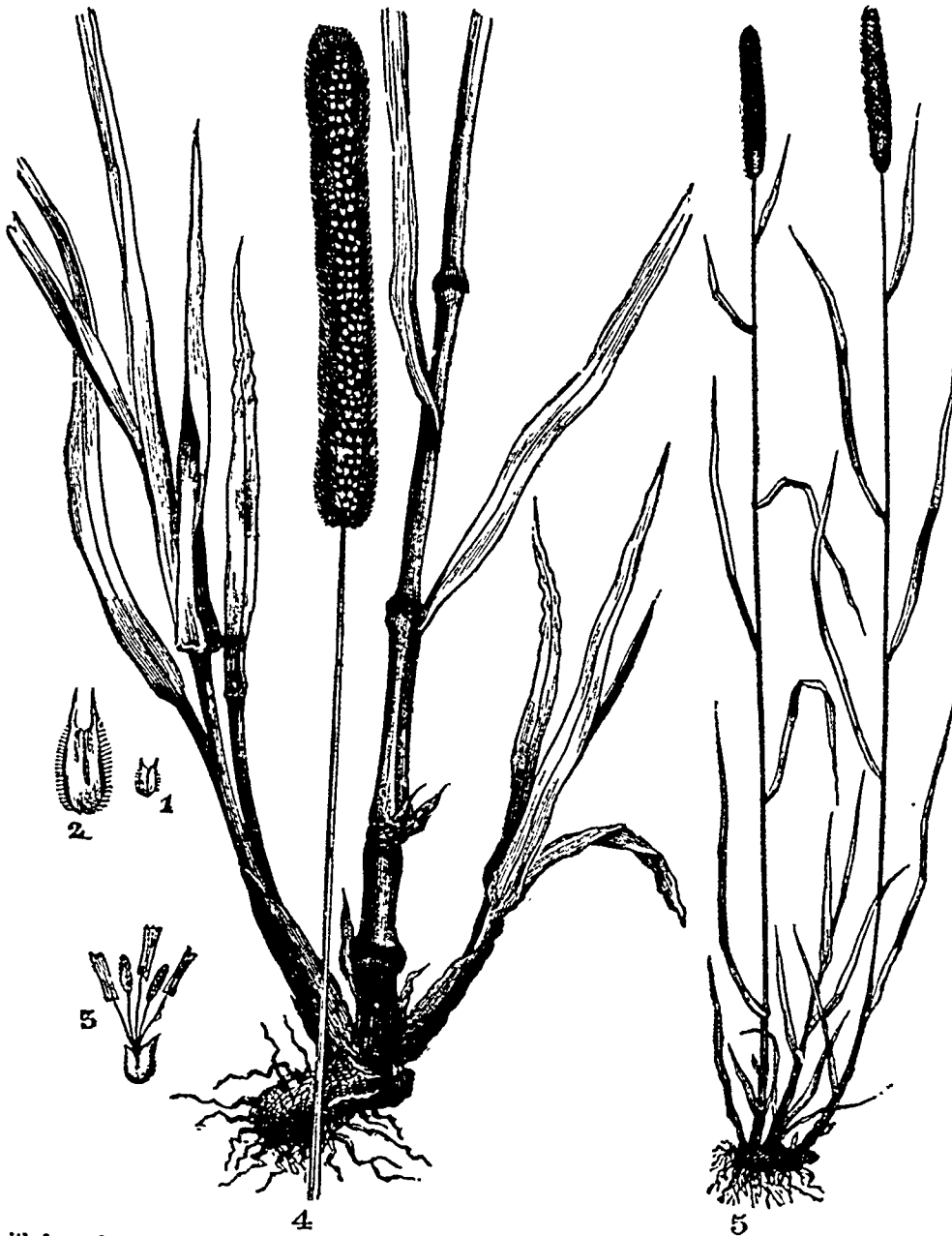
Timothy is not only sold as a lone seeding crop, but is often mixed with other grasses. In Britain, it forms one of many ingredients in a mixture for permanent pasturage. In that climate it is said to yield a very sweet and early herbage for sheep in spring. When mixed with other grasses for mowing, regard should be had to the time of their flowering, as it is desirable this should be simultaneous. For this reason, the best practical farmers disapprove of the common custom of sowing timothy and clover together. There is considerable difference in the time of blossoming of these two grasses, timothy being in variably later than clover. Hence to get the clover at its best, the timothy must be cut too early, and to get the timothy at its best, the clover must be left too long. Both palatableness and nutritiousness in the hay are more or less sacrificed by the usual practice of sowing timothy and clover together.

The seed of this grass averages about 4½ pounds to the bushel, and 74,000 of its seeds are contained in one ounce. When sown alone, from ten to twelve pounds of seed per acre will suffice; in mixtures, of course a less quantity will do. Care must be taken not to bury the seeds of this grass too deeply in the soil. It has been ascertained by careful experiment, that the greatest number germinate when covered with not more than a quarter inch of soil; only about half as many come up when the covering is from three-quarters to one inch; and two inches of earth effectually buries the whole of them. In a successful seeding down, the young plants grow rapidly, and speedily acquire size and vigor.

Like most other vegetable productions, timothy has its insect enemies. The most formidable is one that attacks the plant just before the time of blossoming, and causes the stalk to die. The ravages of this insect are said to have increased of late years, and unfortunately, no effectual antidote against them has, as yet, been discovered.

### The Cultivation of Grasses.

At the annual meeting of the Vale of Alford Turnip Growing Association, held last week, Mr. George Bruce, Keig, Aberdeenshire, who last month got the Highland Society's gold medal for an essay on the “Comparative Productiveness of Turnips,” read the following interesting paper on pasture lands. He said—“Old times are changed, old manners gone,” are words which might well be used in regard to the agriculture of our vale. Not many years ago farmers derived their income largely from the grain crops, but now it is principally, as our worthy M.P. remarked, by the rearing and feeding of cattle that they can make ends meet. As our pastures have therefore a good deal to do with the feeding of our stock, and have not hitherto got the attention they deserve—in other words, though they have degenerated in a great measure by the continued cultivation of the same plants—still the old system of selecting, and manner of sowing the seeds have not changed. I therefore, intend to make a few remarks on this subject, which, I trust, will in some cases make two



with long sheaths; root perennial, fibrous on moist soils, on dry ones often bulbous; grows best on damp peaty soils.”

The appearance and general habits of this grass are familiar to most people. It is easily identified by its flower-head; so similar in form to the tail of a cat, and by its bulb-like swellings or knots at the joints and base of the stem. The accompanying illustration will give a good idea of these distinctive features of the plant. Fig. 5 is a stalk very much diminished

settlers are very apt to fall, its value for hay is greatly lessened, as the stalk of the plant becomes very strawy, and even reedy in coarseness and dryness. Seed of the very best quality may be thus obtained, the marketable value of which goes far to compensate for the loss of hay. When designed for winter fodder, it should invariably be cut while in full blossom, as it is then plentifully charged with nutritious juices, and sure, if well cured, to be greatly relished, especially by horses, for feeding which it makes a hay of

blades of grass to grow where only one grew before. From what I can learn, clover seeds were first sown about the beginning of the seventeenth century, and about 1650 they were sown almost as they are now. It may seem strange, but for nearly two and a half centuries little improvement on the old system of sowing our seeds has been made; while, on the other hand, we know that the grass on many farms is not so good as it used to be. None of my hearers doubt the importance of having good pasture, but were I to ask how much rye-grass and clover seed I should sow per acre to make good grass, so much diversity of opinion exists that ten farmers from the hundred now present would not advise me to sow the same quantities. Without respect to the kind of soil, one farmer sows 40 lbs. of light rye-grass and 4 lbs. clover seeds per acre, while his next-door neighbor, in the same sort of soil, will sow 30 lbs. of the heaviest rye-grass, and 10 lbs. of clover seed per acre. Now, one of the two must be wrong. Unless soil, and crop, and climate are considered, we shall never make good pastures, or hay, for there is a certain "understood connection between the soil and the kind of plant," and it is therefore quite out of the question to suppose that the same seeds will suit all soils and all climates, will suit our thin, high-lying fields as well as our in-town, whether intended for hay or pasture. In too many cases farmers, when selecting their seeds, do not consider that the field for hay should get different kinds and quantities of seed from the field that is to be pastured, and the consequence is that disappointments often occur. Without referring to any particular soils, but speaking generally of the soil in our vale, farmers should sow for hay a large percentage of English red and alsyke clover, with a few extra lbs. of rye-grass. For pasture, more white clover, with a good deal of cow-grass, and a few pounds of Italian rye, and in high-lying soils a pound or two of trefoil (per acre) is very useful, especially for sheep pasture. I strongly recommend the cow-grass clover, not only because it lives a year longer than other clovers, but it has a much larger root. The Italian rye-grass is also of great moment to the farmer, being a most useful early grass, and, if sown at the rate of 6 lbs per acre in the field intended for hay, the second crop will greatly abound with it, thereby being a preventive for the blowing of cattle. By sowing a few pounds of it with the other seeds, you may then sow less clover seed, and be easier on your soil. Some farmers do not sow alsyke clover. I think this is a mistake. It is a most useful friend to the farmer. It is perennial, no winter kills it, and it is very seldom injured when the crop is laid. It is said cattle do not eat it, and, no doubt—it being a strong-tasted plant—they do not care for too much of it. Were I to compare the taste of the cattleman to the cattle, the matter may be explained by telling you that one of our north country cattlemen went lately the round of Bingley Hall, Smithfield, and Newcastle shows, and on being asked by his companion, when he returned home, "Fa he liket to live in the south?" he replied, "Nae ava, Saundy, man I liket the diet a' y' weel in the b'ginning", but as I got naething ava bit roast beef and plum puddin', and stuff o' that kin', I got rael sick saer't o't." Now, cattle are somewhat like our cattleman—they do not like too much of any good thing—they do not care for too much alsyke, and to justify what I say, you have only to notice them, when in a field of the finest clover, go and eat the moss from the top of the fence. Very often the farmer is surprised to find abundance of clover in one field, and hardly a plant in the next. My belief is that this is in a great measure owing to the kind of seeds we sow. A deal of the foreign clover seeds are too weak to withstand the vicissitudes of our changeable climate. Frost one day, rain the next, sleet and rain and snow, and so on, on certain soils, has a tendency to throw out the clover seeds. I have seen a field where, on the part that was exposed, hardly a plant could be got, while on the other side of the field, which got the same amount of frost, but did not get the morning sun, plenty of clover plants were to be seen. The farmer should therefore use as hardy seeds as possible, and this can only be obtained by using seeds of certain countries' growth. I mean English grown seeds, or at least a large percentage of them. Welsh red clover is also becoming a favorite. You all know the importance of a change of oats, and, in like manner, red clover from the mountainous districts of Wales is a capital change. If the farmer sow English grown clover, he may expect a strong, broad-leaved plant. If, however, he sow weakly seeds, unless in very favorable seasons, he is certain to get weakly plants. Let him sow strong clovers, or, at least, a large percentage of them, and then he will hear less of that remark, "clover sick," which many of our best farmers only too often make. Owing to the size of our clover seeds, there being from 240,000 to 250,000 seeds in a pound,

the farmer often makes the mistake of burying his seed. By experiment we lately found that red clover brairds best with a covering of half an inch of soil, that only fifty per cent. will grow if put 1½ inches deep, and at a depth of two inches not a plant will appear. With white clover the best braird is with half an inch of covering; at 2 inches only the half will grow, and at a depth of 1½ inches not a seed will germinate. From this the necessity will be seen of getting a fine mould to receive the seeds, and also, on looking at the root of clover I showed you, you will then see that too much care cannot be taken in preparing the soil, the rootlets being so very feeble. Some farmers roll the soil before putting in the seeds, but in many cases, if rolled ten times instead of once, all the labor would be repaid by the crop, for it is evident that if the smaller clover seeds be sown on a rough, cloddy surface, the half will never spring. Good pasture is not only valuable in itself, but through all the rotation, and the loss, therefore, to the farmer when his seeds do not grow, is not only on his hay or pasture, but also on his succeeding crops. Even as far back as 1700 it was noticed, "that where there was a good crop of grass, a good crop of grain generally followed." We know that the roots and leaves of our clover grow in direct proportion to each other. The farmer should therefore use every effort to get strong plants, and plenty of them. When laying down the grass and clover seeds last season, I set aside three plots, giving to No. 1 plot 5 lbs. of clover and 36 lbs. of rye-grass seed per acre; to No. 2 plot I gave 6 lbs. of clover and 36 lbs. rye-grass seed per acre; to No. 3 plot I gave 7 lbs. of clover seed, 30 lbs. of rye-grass, and 6 lbs. of Italian rye—the clover in plot 3 being the best, strong, healthy seed I could lay my hands on. I last week dug up one square yard from each plot, sifted out all the roots of clover and rye-grass, and weighed them. In No. 1 plot I had 2½ cwt. of roots per acre, in No. 2 plot I had 29 cwt. per acre, and in No. 3 plot I had 35 cwt. of roots per acre. Can any one doubt the importance of strong seeds after this? With roots something like what I have already showed you, the value of which as a manure many here will be able to enlarge upon, roots entering the very subsoil, decaying and opening up the soil, making way, and acting like drains. This opening of the soil is a most important matter to the farmer, and no landlord knows it better than our chairman, when I am told he gave a tenant of a 150-acre farm £90 in on year for drainage. We got a very able paper last year from Mr. Stevenson on the manure we should give to our grass, and I need not touch this wide subject. But how is it that bones and lime often improve our pastures? The science of chemistry tells us that an average crop of clover carries away per acre about 80 lb. of lime and 19 lb. phosphoric acid. The necessity, therefore, of returning lime and phosphoric acid in some shape may easily be seen. White clover is an acid-hating plant (chemistry comes again to our rescue, and tells us that time will take away the acidity from the soil, and allow the white clover to be in the condition of my friend the cattleman—get the food it likes. I do not believe the ideas on future farming lately seen in *Fraser's Magazine*, where it is proposed to raise three crops in the year by heating the soil with steam, nor do I believe that Mr. Jeffries' ideas of cultivating our fields will work. I would rather put the steam into the brain of our rising generation, by teaching them chemistry. Let them take a leaf from the life of the owner of Tiptree Hall (whose works are well worth reading), and who writes me that his success has been by giving plants their proper food—by attending to his subsoil. Is it not a blot on Scotland, and more so on Aberdeenshire, the most famed cattle-feeding county in Britain,—that we have no middle-class school or college where the rising generation might study the science they are to follow after, for surely the science of agriculture has now a claim deserving of attention? Until this come about—until the groundwork of the problem be understood—the words of Liebig will come only too true—unconsciously to the ignorant farmer, all his industry, care and toil only hastens his ruin; while, on the other hand, it is only by knowledge that capital and power are attained.

Mr. McCombie, M.P., said he occupied some very poor land, and he did not know of any other clover that would grow on it as alsyke did. He did not say that cattle were particularly fond of it, but he found that alsyke clover afforded them a fresh mouthful where no other clover would hold, and he thought that on many farms it might advantageously be sown, if not alone, mixed with other clovers.

Mr. Mitchell, Auchnagathie, had got a great deal of information from Mr. Bruce's paper, but he should have liked if the essayist had given them some idea of the quantity of grass seed that should be sown. On the plots which Mr. Bruce had mentioned, the weight of roots seemed almost incredible. He thought

Mr. Bruce had also neglected to say what was the weight per acre of the grass grown on each plot. Did it correspond at all, or was the lighter weight of roots the heavier crop of grass? Ho (Mr. Mitchell) thought it was likely that it was so, or, at least, that the medium quantity would have been the heaviest crop of grass.

Mr. Anderson, Wellhouse, thought alsyke clover should be more extensively used than it had yet been in that part of the country.

Mr. Bruce said soils differed in composition so much that he would scarcely take it on him to say particularly what quantity should be used. The nature of the soil on each farm had to be considered, and the quantities would vary. He had only given his own experience. With regard to the grass grown, much of it had been destroyed by sheep, and he could not give the quantity. The roots were weighed when they were taken up.

A vote of thanks was passed to Mr. Bruce for his paper.—*North British Agriculturist*.

**SOWED CORN.**—Do not fail to sow this crop in succession either for soiling purposes as the pastures get short, or for curing for winter. By all means sow in drills, that the cultivator may pass through the rows, and that the sun and air may have free access to ripen and elaborate the juices of the plant.—*Maryland Farmer*.

**TOP-DRESSING MEADOWS.**—D. G. is informed that we had quite as soon top-dress a meadow early in spring, just as the grass is starting, as at any time of year, indeed, we had rather, with a view to securing the full benefit of the manure, apply it at the time named than in the fall. But the question of time and labor is involved; and the farmer, as a rule, has less time to do this work in than in autumn.—*Ex.*

**MILLET AND HUNGARIAN GRASS.**—Wherever the prospect is for a short hay crop, prepare and sow a few acres, or a single one, in one of these valuable forage crops. They will be fit for use just at a time when most needed, and what is not consumed green is easily cured. They make excellent food cut green for soiling, much liked by cows. They should both be cut when in blossom, as if the seed is allowed to mature, the hay is then of little value.—*Maryland Farmer*.

**TREATMENT OF RED CLOVER.**—A correspondent of the *Rural New-Yorker* writes: "When red clover ceases to do well, it is generally the consequence of lack of lime or lime stuff in the soil. Lately experiments have proved with a satisfactory result that there is a remedy for this, in a method of artificially supplying the soil with the required necessary lime. When the soil prevails to red clover, root crops, such as potatoes, sweet potatoes, beets, turnips &c., are planted, that require hoeing, apply the lime to the soil, mix it well with the same, (before hoeing) and the result has proved exceedingly satisfactory."

**PERMANENT GRASS.**—Water meadows are amongst the most productive of permanent grass lands. But the management of water meadows is very frequently injudicious. No cattle should be allowed upon an irrigated meadow, nor should the water be permitted to run continually over one spot. A meadow thus treated very soon becomes a morass, and is then spoiled. A dressing of bone-dust is remarkably beneficial to water meadows, greatly thickening the grass and improving the quality of the hay. An application of plaster the next year still further improves the meadow. As soon as the hay becomes inferior in quality and decreases in quantity, it is restored by a repetition of this treatment. The opportunities for making water meadows are frequent, and as their value becomes appreciated they will become much more common than they are now.—*Am. Agriculturist*.

**MIXED GRASS.**—At the annual meeting of the Mass. Agricultural Association, a paper was read upon growing grass. In the discussion which followed it was remarked that farmers should be careful to sow together only those grasses which ripen at the same time. This is a mistaken idea. The chief reason why a variety of grasses should be grown is that there may be a constant succession of growth. The weakest point of our meadows is that the grass ripens, fades, and suspends growth for the season, leaving a brown, withered, or bare surface. If there were a succession of consecutively ripening grasses there would be a continued greenness and verdure, and the pastures were only not overstocked, this would be as great an approach as we can make with our peculiar climate towards a permanently green meadow or pasture. But if all the grasses ripen at once, we may as well continue to grow one single good grass as several good and bad ones.—*Am. Agriculturist*.



## Horticulture.

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

### Apple for Name.

An esteemed correspondent residing near South Monaghan has sent us an apple desiring us to give the name. This is not quite so easy a thing to do as many persons seem to imagine, even when one is quite familiar with the variety. A single specimen may but very imperfectly show the peculiar markings which are distinctive of the variety, and so leave the examiner in great doubt, when, if he had a dozen specimens from the same tree, he might have no hesitation whatever in giving the name. And here we desire to say to our correspondents, that when they wish a fruit named, to send not less than a dozen specimens, and to send them to St. Catharines, directed to the care of the Horticultural Editor there. This will save time and the delay consequent on receiving them first at the office of publication and then forwarding to St. Catharines. It will give the writer much pleasure to aid our pomological friends by naming any fruits that may be sent to him, and that he may be the better able to name them correctly, please to give him all the information with regard to them that you may possess, whether you know the tree to be grafted where the variety was procured, and the character of the soil in which the tree is growing.

In the instance now before us, the fruit has many points of resemblance to a well known apple, but also a few points of difference. The general form of the apple is more conical than is usual with the Newtown Spitzenburgh, which in color and flavor it very closely resembles. If there were a dozen samples taken at random from the barrel, it might be seen, on looking at the other samples, that this conical form was exceptional, and that the oblate was the normal shape of the fruit. In that case there would be no hesitation in saying that this apple was the Newtown Spitzenburgh; but if, on the other hand, the oblate form was exceptional or wholly wanting, there would be strong grounds for believing that it was some other variety. As the matter now stands, with only one specimen to judge from, it can merely be said that this fruit may be the Newtown Spitzenburgh. It is certainly a good apple; and if the tree be hardy at South Monaghan and a good bearer, it is well worthy of being cultivated generally in those parts.

### Cross-Bred Apples.

"I am much pleased and interested in the remarks and experiments of C. G. Pringle and others in crossing apples, and taking the Northern Spy for the female parent. It would seem that I am a little in advance of some of these gentlemen in this matter, having crossed Northern Spys with Wagener and Spitzenburgh some nine years ago, and I now send you samples of fruit by express of four new varieties thus produced. The notion current among hybridists that the male parent exerts its influence chiefly over the fruit, while the female gives character to the plant or tree, is according to my experience erroneous.

"In many of my experiments in crossing grapes, raspberries, strawberries, and cereals, I have found the pollen to exert an almost entire prepotent influence, so that scarcely a vestige of the character of the female parent was to be found in some of their cross-bred offsprings. Take for instance our black-cap raspberry crossed with white four-seasons, some of the seedlings bore white fruit, exactly like its father, and threw up abundance of suckers, but could not be induced to root from the tips of the canes like its mother. Again, I have sown white sweet wrinkled corn, and early in the season removed its own pollen, and then at the proper time furnished pollen of some common yellow corn, then again some pollen of purple corn, and when the corn is ripe, I have found, instead of white sweet corn, yellow corn and purple corn in the same ear, and in some instances both yellow and purple in the same kernel distinctly marked; and yet the female parent, the kernel of seed that produced the stalk, was white sweet wrinkled corn, showing,

in my opinion, three distinct results in the corn experiment, viz.: the power of the pollen to change the color and shape of the corn; its immediate effect upon the embryo grain to which it is applied; and also a proof of superfecundation, or, in other words, of one seed being the joint issue of the two male parents.

"But to return to the apples. Mr. Pringle says 'many seedlings were grown and transferred to the limbs of bearing trees,' with a view, I suppose, to have them come into immediate bearing. Well, friend Pringle, I wish you every success, and if your seedling apples grafted upon the limbs of the bearing trees, bear fruit before the original tree upon its own roots, I hope you will let us all know it, for like yourself I was once a believer in this (in my opinion) popular fallacy; and have grafted many cross-bred seedlings into the limbs of bearing trees, and worked them upon Paradise stock in order to bring them into immediate bearing, but never by this means succeeded in getting one young seedling that had never borne fruit to bear earlier than the original seedling tree from which the graft or bud was taken. In regard to the utility of crossing our best apples with our best varieties of crabs, it is a point upon which I am yet undecided, but it always seems to me a retrograde movement.

"Have we not seedlings from some of our best old varieties of apples, with constitutions equal in every respect, and with better fruit than our best crabs? I think we have, and in my experiments in crossing apples, I have always got more of the crab quality in the fruit than was desirable, notwithstanding every known means was used to guard the pistil operated upon from the insidious influence of the subtil crab pollen, that might be floating in the atmosphere at the time of the operation.

"Where do these crabs come from? is a question that I have asked myself hundreds of times, when looking upon the first fruits of some of my carefully crossed, long and anxiously waited for seedlings, that were really, after all, nothing but crabs. Are these cases of reversion to the original parent stock? Is it the influence of the root upon the seed of the graft? Or was the air filled with minute particles of farina from my neighbor's crab tree some ten rods distant? as minute and invisible perhaps as the fragrance of its blossoms. Was it this that stole a march upon me?

"Oh, how little do we know of these matters; but let not this discourage any young hybridist. Much more is known now than was known fifty years ago on the subject of crossing plants. And I think the fruit just sent will show that I have not labored in vain in crossing apples. I might state that the Ontario Fruit Growers' Association awarded me a first prize this fall for a seedling thus produced that is now past ripe. And although it has long been a question in my mind whether any experimenter in these matters will ever be rewarded financially for his labors, yet there is a reward in feeling (as Hon. M. P. Wilder once said to me) that 'success will crown your labors and posterity bless your memory.'

"For the encouragement of others in this great work, let me say, that after many years' labor, I now feel confident of having succeeded in producing a strawberry, a raspberry and fall wheat, superior to anything ever before grown in this country. I shall take pleasure in sending the *Country Gentleman* a few plants of a new seedling strawberry, a cross between Wilson's and Dr. Nicaise, a great bearer, and has taken first prize for size and flavor wherever exhibited.

—CHARLES ARNOLD.

"PARIS, Ont., Jan. 15th, 1874."

The specimens came in good condition, and we have given them a careful examination. No. 1 is a large and beautiful apple, three inches high and nearly four inches in diameter, oblate, considerably ribbed, and deeply shaded and striped dark red on yellowish ground; the short stem in a deep, acute cavity, and the calyx in a very deep ribbed basin; flesh nearly white, tender, with a rather acid, but agreeable and pleasant flavor. Should the specimens generally be like this one, and the tree prove a good grower and bearer, this variety would become popular in market. The characteristic both of Spy and Wagener are strikingly seen in its external appearance. No. 2 is a moderate sized, ovate-conical apple, with a very long stem and very narrow crown and basin; the skin mottled and striped red, the flesh yellow, fine grained, rich, mild, subacid and very good, and apparently a cross of the Esopus Spitzenburgh and Spy. No. 3 is a handsome, oblate, ribbed apple, with a strong blush on waxen yellow skin, fine grained, but rather deficient in flavor. No. 4 resembles No. 2 in shape but is duller in color, and with a mild subacid, moderate flavor.

We regard the intelligent originators of new varieties of apples and other fruits in the light of public benefactors, who will never be likely to reap much pecuniary benefit, and who must find enough inter-

est in the experiments and their results to repay their labors; and it always affords us pleasure to give such results as those mentioned above by Mr. Arnold to our readers.—*Country Gentleman*.

### The Export of Cranberries.

From the following favorable notice of the American Cranberry (*Oxycoccus Macrocarpus*) in the *London Field*, Feb. 14th, there appears to be a good opportunity for the successful introduction of that fruit into Great Britain, and a little perseverance in placing the berry fairly before the public there would, no doubt, result in an extensive recognition of its merits, and ultimately causing it to become as great a favorite with Englishmen as it is with Americans and Canadians. Through the kindness of Messrs. Carter & Co., of High Holborn, we have received a box of American cranberries from the New-Jersey Cranberry Growers Association, accompanied with a request that we would test and report on their culinary value, and state their condition in which they arrived in this country. The cranberries themselves are much larger and finer than those we are accustomed to see, being, we believe, the produce of the *Oxycoccus macrocarpus*, and not of the species indigenous to Europe, namely, the *Oxycoccus palustris*. They were sent in small boxes containing about six or seven pounds each, and were not bruised or damaged by the transit.

The production of cranberries in the United States, although necessarily confined to limited areas, as they grow in turfy soil, and the cultivation is attended with heavy expense—has increased within the last few years to a surprising extent, as has also the taste and demand for them. About twenty-five years since, the earlier cultivators were thought to be making rash experiments, and it was feared that a crop of one hundred barrels would overstock the market; but now a capital of millions of dollars is successfully employed in their growth, and the annual yield is estimated to be about one hundred thousand barrels—a large part of this amount being produced in Southern Jersey.

In the United States they are regarded as supplying a place that can be filled with no other fruit, as they keep well if stored in a cool dry room, and can be prepared for use in a short time and with little trouble.

The great American cranberry dish is cranberry sauce, which is used as a preserve with bread or in pastry, or as an adjunct to meat, game and poultry, as we employ currant jelly. It is made in less than ten minutes by stewing the berries with sugar and a little water. Sometimes the berries are strained after boiling to remove the skins and seeds before the sugar is added. As prepared in either of these modes the American cranberries have a piquant acid flavor, perfectly *sui generis*, the recollection of which makes us regret the fact that at the present time they are not to be obtained in England. We also tested the fruit in pies and tarts made after the English fashion, and found it most excellent. The Americans have a household method of sealing up their preserves in airtight jars, which are not to be obtained in this country; therefore we tried the cranberries as in the form of a jam, but the amount of boiling necessary to reduce the fruit to a solidity fit for keeping dissipated the flavor to a considerable extent. The strained juice forms a very admirable jelly, of an exceedingly rich color and perfectly transparent. We had not an opportunity of trying all the American receipts with which we were furnished, but, from the experience we have had, feel confident that the New Jersey cranberries only requires to be known in this country to be very highly appreciated.

TWO VERY HARDY APPLES.—The Walbridge and Ptawukee are spoken of very highly by the *Western Farmer* as being exceedingly hardy apples.

GOOD FRUIT YEAR.—Reports indicate that the fruit prospects are very flattering this year. Peach trees are in specially fine condition, and for the first time in years it is thought that the plum crop will not turn out a failure. Small fruits—berries, currants, &c., all promise well.

RECIPE FOR RABBITS THAT LIKE TO BARK YOUNG APPLE TREES.—To eight pounds of lard (old rancid grease will do as well) add one pound of Cayenne pepper ground very fine; heat and mix thoroughly; apply warm with hand or brush, from the ground up, fifteen or eighteen inches. One application will last for two years.

## VEGETABLE GARDEN.

## Management of Hot-Beds.

"File fresh horse manure in a conical heap, and when hot, fork over at a few days' interval, and then make into a bed one or two feet larger each way than the frame. After the heat reaches 90° in the soil, sow seeds, give plenty of air on clear days, and cover well at night."

That comprehended the whole orthodox gospel of hot beds, as far as I can find it printed in every book or periodical that touched upon the subject, when I began gardening. But I soon learned there was a whole world of trouble beyond simply that. To start hot-beds was easy enough, but how to manage them, avoid losses, handle them at least expense and secure the greatest profit, were matters I learned only by experience.

In many localities stable manure is difficult to procure fresh and in quantity sufficient for a large number of beds at just the particular time when wanted.

We usually begin hauling six weeks before any is wanted, allow it to freeze, and so remain till wanted. It is claimed this injures it, which may be true in some measure, but not seriously. When needed, and thrown into piles, if there is not enough warm manure with it to "start the smoke," a few pails of boiling hot water poured into the pile usually starts it within twenty-four hours. In fact, hot water and cold air are the two regulators, very serviceable in hot beds. Often the heat does not rise promptly when a bed is made—hot water will usually start it. Sometimes the heat in one end of a bed will not rise, while the other is too hot. Hot water poured into one, and holes made with a crowbar in the other, to admit air into it, soon establish even temperature.

A more lasting heat is secured by mixing in about one-third the bulk of unincubated manure. Our course has usually been to throw on two successive layers of hot manure, six inches thick, sprinkling and tramping down each, and then one layer of raw manure. This latter, having lost none of its heat, maintains the temperature of the bed longer than would the hot manure alone.

If a bed becomes exhausted of its heat while still needed, a considerable increase of temperature can be secured by throwing away from the sides the old manure, and banking up with fresh manure from a pile well started to heat.

Except for sweet potato beds, and the later and cheaper of the early cabbage plants, we no longer fill the frame with soil, and make of it a seed bed, in growing any of the flower or vegetable plants, but sow all our seeds and grow all our plants in boxes. These can be changed from one bed to another, as a higher or lower temperature is sought, can be carried into the garden when wanted, or, if left in the frame the beds can be cleared with half the trouble required to clean a frame filled with loose dirt. A convenient sized box for one man to handle is made by splitting in two soap, starch and other small sized grocery boxes. For two men to handle, the common oyster case or box in which cans are shipped, when split into two, is very good. In these are sown tomato, cabbage, cauliflower and other seeds, and when the third leaf is well started, the plants are transplanted into other boxes, an inch apart each way, and some sorts, especially tomato, a second and even a third time, and finally placed in a cold frame to harden.

Of all devices in which to sow and sprout seed, an earthen pot is the worst, and none but a professional can succeed with them. They are wasteful of space, always tipping over and spilling or breaking plants, awkward to handle, and with plants in them it is hard to conceive of a thing more difficult to pack for shipment. In a moist climate, with an atmosphere fairly saturated with moisture, they may do well, but when we open our beds in the warm days of spring, and the dry air passes around and among them, every pot is converted into a suction pump, and you are hardly safe in setting down the sprinkler long enough to go to dinner. The nicest seed beds I have found for flower and the more delicate vegetable seeds, are cigar boxes with lids removed and holes punched in the bottom for drainage. Dealers soon learn these are worth something, and put a price on them. We then get oyster cans at a cheaper price, and remove one of the broad sides, and punch holes in the bottom. Both of these can be packed closely, do not dry out quickly, but yet have abundant drainage, and are subject to but little breakage.

Plants from small seeds are often drowned out when small, even when sprinkled with a fine rose. A very good way is to dip a clothes brush into water, and then, by drawing the finger over it, a fine spray is thrown off, suited to the most delicate plantlet.

For five years past I have used cotton cloth made into covers a few inches wider and longer than the frame, hemmed and provided with small curtain

rings fifteen inches apart around the border, and stoutly sewed on, by hooking which over small nails or inverted hooks, the cloth is drawn air tight over the frame. To this I apply once on the upper side the following preparation while hot: 1 qt. linseed oil, 1 ounce pulverized sugar of lead, 4 ounces pulverized rosin; heat in an iron kettle till all is thoroughly dissolved and mixed. This renders the cover air tight, and nearly transparent. They cost about one-eighth as much as glass, and while not as good for the earliest beds as glass, for later use I prefer them, and more than three-fourths of my beds are covered with such. With hired help I lose plants every year under glass; under cloth, rarely, and never a serious loss.

"Dampening off,"—a decay of the plant at the surface of the ground—has not, I believe, any universally accepted explanation. From my own observation, I should say that it is most serious when there is a decided difference of temperature between the atmosphere where the top of the plant stands and that of the soil in which the roots are. Leaky old frames through which drafts can circulate, usually suffer worst. Sometimes in a long spell of cold, cloudy weather, the best beds, under the most careful management, will suffer seriously. It is a good rule to sow seed for twice as many plants as you expect to need.

After several days of cold, dark, cloudy weather, a little care must be exercised in exposing the plants to a blazing sun. The organism of the whole plant has been changed—adapted itself to the weather—and should be partially screened a few hours, (often only two or three), until "reconstructed." In extreme cases I have seen all the more tender plants of a full greenhouse droop, as a bright sun suddenly came out.

Oftentimes, when plants in cold frames or hot beds are wipped with the frost, by a little care they may be saved from serious injury. When it is discovered, any are frosted, they should be at once sprinkled with cold water, kept shaded, and often recover with only the loss of a few leaves. Tomato plants which have suffered in this way are often the first to mature fruit, though not often large or prolific plants.

For night covers wooden shutters are good, but expensive and heavy, and not warm enough. I have made no new ones for some years. Mats made of rye straw or slough hay, of course, are good. But oftentimes you will make more beds than intended, and some cold night find yourself short of a sufficiency of covers. Hay or straw spread over the beds are a sufficient protection, but such covering is unhandy, untidy and wasteful, and is suggested only for an emergency. When short, of course, I have sometimes gone to the paper walls and rag dealers, and found a plenty of old carpets to be had for the price of old rags, and when laid with a discarded cloth hot bed cover of some cheap material, made a very serviceable protection.—*Fruit Recorder.*

## High Culture for Vegetables.

It may be possible to over stimulate some kinds of plants, but this is so seldom done that it may be considered an exception to a general rule. Big vegetable products, so frequently at fairs, or received from more settled regions of country, are always the result of rich soils; and we never heard of big beets or monstrous melons coming from poor sand banks or clay beds; and this fact alone is enough to let every farmer and gardener into the secret of success. We never were the least afraid of overdoing the point in heavy manuring the vegetable garden, even if it was naturally a rich soil. With most kinds of vegetables rapidity of growth means excellent quality. Tough, stringy Beets, Carrots, and other roots, are usually the result of slow growth and want of moisture, which comes mainly from a poor, shallow soil. When we see poor, small, half-ripened, scurfy tomatoes in market, we know the man who raised them neglected to enrich the soil. The notion, which is far too prevalent, that this fruit does not require a rich soil, is a great error; for the best tomatoes are always produced on good land. A few early ripened specimens may be procured on a light, poor sand; but are never of good quality, and the plants seldom produce enough to be considered a fair crop. We do not know of a plant that will give a more generous return for high culture than the tomato; therefore, our advice is, put in the manure, and in liberal quantities even if it should become necessary to prune the vines in order to let in the light and hasten ripening.

Melons.—Who ever saw a good crop of melons on a poor soil? Overcrowding the plants and starvation has more to do with the failures than all other conditions combined, at least in climates where this fruit ever succeeds. As an instance of what a melon vine will do if it has a chance, we may relate one in our

own experience: A water-melon vine appeared a few years since in one corner of our garden, springing, probably, from an accidentally sown seed. The soil where it appeared was quite rich, being the site of an old-hot bed. We had this vine hoed, and cleared the ground about it so that it could have a fair chance to make its way, which it did to the extent of about a square rod, giving us fourteen melons, the smallest weighing about twenty pounds, the largest nearly thirty, and all the product of a single seed! There are certainly no secrets about such kind of melon culture; the rich soil and the free use of the hoe did it, and nothing else. If the soil is naturally too heavy for melons, it is not an expensive job to plow up ridges to make large hills, and even add a little sand, or light leaf mold or compost, at planting time. A liberal application of wood ashes to the hills during growth will also be beneficial. The same system may be adopted for all kinds of vines, such as cucumbers, squashes and pumpkins.

Beets.—Plow deep and make rich should be the rule for all kinds of root crops, and especially for beets. We never could succeed with long beets on a very light soil, however rich; but the turnip-shaped sorts always have done well.

Onions.—New and rich soils are best; but the old garden will produce good crops if fresh, unfermented manures are not applied the same season the seed is sown. An onion patch should be placed in the same list with the asparagus bed, and when once well fitted with these bulbs, kept for this special purpose and no other; for onions will grow on the same ground as long as its fertility is kept up, but not so well.

Cabbage.—If this vegetable is grown for several years in succession on the same land, the cabbage maggot is likely to become so abundant that what is termed club foot will render their culture a failure. Of course there are localities where this insect (*Anthomyia brassicae*) is unknown. Best Mammoth Cabbage are produced only on land containing the elements necessary for producing them.

But we need not specify further. Our readers will see the point at which we have aimed, viz: High culture is the certain road to great and profitable results.—*Rural New Yorker.*

## Tomatoes.

You must begin now if you would have early tomatoes. Prepare a special hot bed, and see that every joint is closed to keep out the cold, have a good rug and shutter ready to cover it up at night. After the first violent heat has subsided sow your seeds. Put them in drills four inches apart, sow the seeds very shallow and make the surface firm by patting with the back of the spade. If there is lack of moisture to cause the seeds to germinate, wet the earth before sowing, and after it has dried sufficiently to work handsomely, sow. Never wet the ground after the seeds are planted, and be sure and make the surface firm. When the plants are up give them air during warm sunny days, but do not risk the shutters and rug off at night. One sash, three by six feet, will hold one thousand plants. In the latter part of March, the plants in the nursery hot bed will be getting too large to keep in so small a space, therefore we must provide more room. Prepare another hot-bed of five sashes and transplant all the plants to spaces four or five inches apart each way. As they grow larger they must be again transplanted, but it will not be necessary to make the third hot bed; they may go into the cold frames from which the cabbages have been taken. Be sure, however, to transplant all the plants; do not simply thin them out. Their roots must be broken. About the 20th of May these plants will be in bloom—large, strong and stocky, and when you draw them out of the beds it will be necessary to saturate the bed with water. Each plant will carry from the bed a ball of earth nearly as large as your head, and when set out you will find that they will not droop or wilt, but grow off at once.

## Chinese Yam in Canada.

We clip the following from the *Rural New Yorker*. It is no wonder that the *Rural* smiled; the only wonder is that it did not "laugh aloud." Perhaps it did, only the *Rural* was too polite to say so. Verily our neighbors across the border must think we are a long way behind the age:—

We smiled a smile just now, when we opened the *Farmers' Advocate* (Canada) and saw under the heading "The Chinese Northern Yam," a statement by the Editor that "a Dr. Prince has brought to this country an entirely new plant to us bearing the above

name. One of our readers has forwarded us one of these yams 13 inches long, weighing 1½ lbs." The Editor proposes to give a set, or tuber, to any person who will send him one subscriber. Then he admits an article by the grower of the above-named yam, who announces it "to be the most important esculent food for man which God and Nature, in their benign provision for our race, have planted upon our globe." Our Canada contemporary is hereby informed that the Dr. Prince, who introduced this yam into this country, is dead, but the Chinese yam died as a humberg long before the good Dr. P. shuffled off his mortal coil. We hope the Advocate will get a subscriber for every tuber it sends out; but we do not hope that the receiver of the tuber will go into raptures over his acquisition, after cultivating it, because there is nothing in its history in this country to base such hope upon.

### Asparagus.

Lay off so that the bottom of the bed will have sufficient inclination to carry away water rapidly. Dig out a trench four feet wide and two feet deep. In the bottom cut a small triangular trench, six inches wide at top and six inches deep, which must lead to an open drain or ditch. Cover the last mentioned small trench with clapboards, sawed off in twelve-inch lengths. Lay on and tramp down leaves to prevent any loose earth from getting into the drain. Commence filling by returning six inches of the first soil moved in digging, then put in a strata of whole bones, then four inches of rich earth raked from the surface of the woods, then four inch strata of manure and woods' earth, alternately, until the trench is full, then fork the whole up so as to mix the earth and manure for the first ten inches in depth. Now set your plants so that the crowns will be level with the surface. Set four rows twelve inches apart every way. Drive posts along the borders of the bed, saw the heads off six inches above the surface, to which nail boards or planks six inches wide and fill in the box four inches more in depth of woods' earth and stable manure, in equal parts. After taking off a crop of early lettuce or radishes dress the bed with two pounds of salt to every foot in length of the bed. In each succeeding February remove the earth nearly to the crowns, and add a fresh dressing of earth, manure and salt. A bed thus formed will last and give abundant crops for twenty years.—*P. Phip's Southern Planter.*

### Early Vermont Potato.

The Early Vermont has more than sustained its previous reputation. Nearly all declare it from one to two weeks earlier than the Rose, and many even more. Its uniform and large size is recognized by every one. Its superior cooking and eating qualities are unanimously commended, as well as its compact growth in the hill and its freedom from disease; and with the thousands of cultivators who have grown it alongside of the Early Rose, there seems to be no doubt left that in quality, hardness, earliness, and yield, it far surpasses that celebrated variety.

**STRONG ENDORSEMENT OF FODDER CORN.**—N. A. Willard gives in the *Rural New Yorker* an account of the experience of A. B. La Mont, a Tompkins County, N. Y., dairy farmer. He has a farm of 190 acres. Last year 35 acres were in grain, 33 in meadow, the remainder in pasture and woodlands. He now has 40 cows, 9 young cattle, 5 sheep, and 4 horses. He grew five acres of fodder corn last year, ploughing up an old sod about May 25, harrowed it thoroughly and drilled 2½ bushels of Western corn per acre in rows six inches apart. About the last of August it was cut with a reaper, let lie a day or so, bound in bundles and set in large shocks. These are drawn to the barn as wanted in winter. All his cattle have been kept on this fodder from the time they were taken from the pasture, about Nov. 1, and it would keep them until Jan. 10. They received no other food except one quart of shorts each daily, and sour milk. They kept up a good flow of milk and were in good condition.

**PRUNING SHRUBS**—The *Gardener's Monthly* gives a list of such shrubs as flower on the wood of the preceding year; and another list of those which bear flowers on the present season's growth—the former to be sparingly pruned in winter, so as not to cut away the flower buds, and the latter bearing more severe pruning. Those bearing flowers on last year's growth are, Dwarf Almond, Snowy Mesplis, the Andromedes, Azalea and Kalmias, Rhododendrons, Calycanthus, Corehoris, Leatherwood, Fothergilla, Cornelian Cherry, Philadelphia, Dentzia, Mezereon, Hydrangea, Itea, Jasmine, Privet, Bush Honeysuckles, and most of the early Spiraeas.

## FRUIT GARDEN.

### The Family Fruit Garden.

It is to be hoped the number of farm residences, (we can hardly call them rural homes), without a family fruit garden, are rapidly diminishing, and will grow beautifully less until a farmer shall no more think of dispensing with this important adjunct of the complete home than he would with a spring, or well of water for drinking and culinary purposes. A good fruit garden is not only a luxury of the highest order, but it is a necessity to the complete nourishment of a family. A family can exist on a diet of bread, and meat and potatoes, but to be nourished so as to fully develop the entire nature—affectional, intellectual, and animal, a range of diet must be employed, broad as the providence of nature.

A family fruit garden may be so laid out and planted as to be one of the greatest ornaments of the homestead. Unlike the front lawn, it should be made of straight lines, and paralograms to facilitate its culture, but care may be exercised in selecting fine specimens of trees and pruning them into proper shape, and in keeping the vines, canes, and bushes of the smaller fruits pruned and trained in an attractive way. Trellises for grapes, and stakes for canes may be made neat and ornamental, or unsightly and repelling. In arranging the different species of fruits, the taller growing should be planted in the rear, and the shorter in front, so that the whole garden may be taken in at a glance. The walks and borders may be seeded down in grass, and kept short. The latter should be broad enough to admit of the horses turning upon them when cultivating the garden. To add to the effect, graceful evergreens, or attractive low-growing deciduous trees might be planted at the corners of plots, and a belt of evergreens along the northern side of the garden. In many other ways that will readily suggest themselves to the tasteful reader, the fruit garden may be made to minister to the aesthetic as well as to the sensuous nature of man.

The soil of the fruit garden should be good, deep, retentive, naturally or artificially drained, and worked up deep and fine before planting. A good manure for fruit, is a compost of swamp muck, ashes and lime. Rank vegetable manures should not be ploughed in so as to come in contact with the roots, in their crude state, but, if used at all, should be applied as a mulch, after the trees are planted.

In small places where all the fruit is to be contained in the fruit garden, dwarf apples, pears, and cherries may be admitted, but on a farm, apples and cherries should be remitted to the orchard. Peaches may be trained low, and kept shortened in, thus occupying but little space. A fruit garden, then, designed to grow all of the fruits required by the family would contain apples, peaches, pears, cherries, quinces, plums, apricots, grapes, currants, gooseberries, blackberries, raspberries, and strawberries—thirteen different species—enough to have one or more kinds of fresh fruit upon the table every day in the year.

A family fruit garden, filled with such fruits, thriving and productive, would be a blessing to the whole family, and, with the exception of the family sitting-room, the dearest place on earth to the children.

It is surprising that intelligent, prosperous farmers will live on from year to year with such luxuries within easy reach, and yet not put forth their hands to grasp them. We cannot help regarding it as a neglect of duty to their families, and a lack of appreciation of the bounties which a beneficent God has offered them.—*Rural Home.*

### The Gooseberry.

The Gooseberry is propagated by cuttings, layers, or suckers. The former is the best method under ordinary circumstances, and is that generally adopted. These should be made from vigorous, well-ripened young wood, which may be cut in lengths about 1 foot, and being cut squarely across at the heel joint, the eyes must be removed from the lower 4 or 5 inches, to which depth the cutting will be inserted into the soil. Cuttings may be made any time during autumn or winter, and if planted in any spare corner will require no attention further than keeping them free of weeds during the first year, at the end of which they may be transplanted, as they get crowded, till large enough to be placed in their permanent position. In planting out, they should be placed at least 6 feet apart, which will be no more than sufficient to permit of freedom in gathering the fruit, &c.

In laying the foundation of a well-managed plant, the first object is to secure a clean stem of at least 6 inches in height, by rubbing off all the lower eyes, and the top having been removed, the eyes nearest

may be allowed to break away to the number of three or four. These in the winter pruning may be shortened back to about 6 or 8 inches, and from these again two, or at the most, three shoots may be allowed to break away for the second season. During succeeding seasons the same system may be followed. Careful regulation and restriction in numbers of the leading shoots is of great importance in preserving an equal balance, and gradually the side shoots may be shortened back to two or three eyes in the form of what is technically called *spurring*. These restricted growths gradually lose their tendency to run into gross growth, and consequently are more ready to develop fruit buds in greater abundance.

The shape which is most approved for training the gooseberry, is the concave, or saucer shape. For this purpose the centre is kept as free as possible, so that the light and air may have full play on all parts of the plant, thereby hardening the growth and improving the flavor of the fruit.

### Small Fruits.

While the apple is regarded by most persons of the northern States as "the fruit of fruits," placing all others somewhere below it in value, it by no means follows that many other varieties of fruit are not of very great importance. No one could enjoy the luxury of a well-ripened Baldwin, Waggoner, or Northern Spy better than I do. To all meditative minds the apple, as a species of food to the human family, affords suggestions which loans to it a merit and gives to it a significance that quite transcends every estimate of it when estimated merely as food. No one should ever eat an apple without having renewed within him some thought of God and the benevolent Providence about him! And yet who has not gone out in enthusiasm in behalf of the grape, often gratifying the taste and satisfying the appetite upon the rich clusters of well-ripened Concord, Ionas, and Delawares? If the apple has a nature too lofty for the plane of equivalents, and which would be injured by comparing gold with it, we cannot think of the vine, when loaded with clusters perfect in symmetry and inspiring in taste, without regarding it as "a thing of beauty and a joy forever." I do not find fault with the Swedenborgian for insisting that the spiritual world must contain these in some spiritually perfected sense, of which our varieties are the types and shadows, in order to supply a want of the soul that is too intensified to be in any way associated with mere appetite.

It is a melancholy fact that there are hundreds of gardens spread all over the west made monotonous and gloomy by the absence of a single vine or rosebush; and thousands of men who have belched out streams of tobacco juice who never made an arbor for a single vine. What a pity that the education of man should remain so imperfect that these higher elements of the soul should always be neglected! It is a melancholy fact that only a few men compared to the masses understand the culture of fruit and flowers. Grangers, here is a glorious field opened up to you. Lecturers, what a blessed opportunity is offered here for the exercise of your gifts. While a small portion of our mission is to give thunder to corruption in high places and unmerciful monopolists, let us not put in so much precious time scolding and berating at the neglect of the higher and more sacred objects contemplated in this organization, namely, the educating up to higher planes of life and effort of the great masses of the laboring classes.

But I must not neglect any longer to speak of that sweet and precious little fruit we call the *raspberry*. It has so many virtues to commend it that I can scarcely even refer to them. There is one thing, however, connected with it which I want to emphasize. *It is suited to the wants of everybody, and everybody ought to plant it.* It will bless your children by giving them rosy cheeks and happy cheerful little hearts, if planted in sufficient quantities to satisfy their appetites, besides making the husbandman feel that he has done the right thing once. Be sure and plant. JOSEPH HARSU, in *Germantown Telegraph*.

**THE PEACH CROP—A VERY LARGE YIELD EXPECTED.**—Wilmington, Del., Feb. 18.—A meeting of the Fruit Growers' Association was held at Dover, yesterday, and was largely attended. Full reports were verbally given of the condition of the peach-trees and the prospect for fruit. The general tenor of all of them favored the expectation of a very large yield, so far as can be foreseen. The germs in the buds have not been killed by the severe cold, but, upon dissection, are found healthy and promising. The expectation of all is that the crop must be very heavy, unless damage is done hereafter.



## THE FLOWER GARDEN.

## Spring Flowering Bulbs.

The spring flowering bulbs are a very interesting class of flowers, and most of the varieties are very beautiful and easy to raise, and it seems very strange that they are not everywhere found beautifying the homes of both the rich and the poor, in the city and in the country. They make the flower garden gay with brilliant flowers, before the perennial and annual flowers begin to bloom, and last a long time, keeping the garden brilliant at a season when without them it would look barren and dreary, and they sometimes bloom before the spring snows are done falling. One reason why they are not more raised is, that they should be planted in the autumn. But many wait until they are budded or in bloom, a time when they should not be disturbed, and then obtain them.

But my object in this article is not to give your readers directions for the culture of these bulbs, but to give a description of some of the best varieties, from notes taken when they were in bloom last spring, which may prove useful to those who are but little acquainted with these flowers, when they make their selections for planting next autumn.

## Snowdrop.

The little Snowdrop, *Galantha nivalis*, blooms first. It has small, pure white flowers, of no special beauty, and desirable only on account of blooming before any other flower.

## Crocus.

The Crocus comes next, and is a very beautiful flower. The earliest variety has a small yellow flower, with a brown stripe, called the Cloth of Gold. A bed of this variety presents a very fine appearance. Large Scotch and Large Striped are very large and fine striped varieties; and David Rizzio, large purple flower, is splendid. Donna Clara, pure white, is good for variety. There are other varieties which are no doubt equally desirable, but the varieties I have mentioned are the best which I saw. Crocuses make the best display when planted very thickly in beds, the more the better. A very pretty effect can be produced by sowing the bulbs broadcast over the lawn, and planting wherever they happen to fall. The bulbs of the Crocus are very cheap, and every lover of flowers should plant a bed next autumn.

The Hyacinths and the Early Tulips are in perfection about the middle of June. Of the Hyacinths, *Bien Mourant*, and *La Vestale*, blue, are splendid, spike of bloom very large, and with a great many large bells on the spike. *Tubal Cain*, double, has large and very double flowers, of a rich dark-blue color. Queen of the Netherlands, pure white, is a very large flower, and very graceful in form. *Sultau's Favorite*, large single flower of a delicate light red color, and very fine form. *Emiline*, single light blue, has a very long spike of bloom, and enormous large bells, perfect form, and altogether one of the most desirable. *Baron Thuyll*, *Charles Dickens*, and *Emicus* are also very fine blue varieties. *Hannah Moore*, pure white, has large, graceful bells, but is not perfect in form. *Orange Vlag*, single, is described in the catalogues as orange color, but is a very light yellow. I do not admire the yellow Hyacinths, as all I have yet seen have a very light color, and are not as large and perfect in form as most of the other varieties; but others may like them better, and a few will do for variety. *Agnes*, single, deep pink, almost red, is a splendid variety; spike very long, with numerous large bells, set so thickly together as to nearly conceal the stem. *Bouquet Tendre* has small, semi-double flowers, of a very fine red color. *Emilia*, single, rosy white, has very large bells, of a very delicate light rose color.

Many members of the Narcissus family are in bloom before this time. *Narcissus Van Sion*, or common double, yellow Daffodil, is the earliest, and is often in bloom in April. It has large, somewhat greenish-yellow flowers, double, but not very perfect in form, but desirable, principally on account of blooming so early. Incomparable as a large double flower, deep yellow and orange. *Orange Phoenix*, white or light yellow, with deep yellow or orange centre, large and very double, is a very fine variety. *Alba plena odorata*, one of the latest varieties, is of good size, double, and good form, very fragrant, and is one of the most desirable varieties we have. Of the single varieties, *Moschatus minor*, sulphur yellow, and *M. major*, large, deep yellow flowers, are very fine early varieties; *Narcissus poeticus*, white, with the central cup edged with red, is a desirable later-blooming variety. There are other desirable varieties, but these are the best.

The Jonquils (*Narcissus jonquilla*) are very beautiful and fragrant flowers. The large double yellow

has large and very double flowers, and is delightfully fragrant. The single sweet-scented has smaller single flowers, growing in clusters of three or four on a stem, of a deep yellow or orange color, fragrant, good form, and is a very desirable variety.

The most beautiful class of the Narcissus is the *Polyanthus Narcissus*. The flowers of most of the varieties are single, and all grow in clusters of from four to twelve or more flowers on one stem. They do not always flower the first spring after planting, and occasionally a bulb will produce but one bulb on the stem, instead of a cluster. They are less hardy than the other varieties, but when well grown are very beautiful flowers. The *Double Roman* has double or semi-double flowers, and is very easy to raise in pots or boxes in the house. I had one in bloom early in January. It was planted quite late in autumn, and received no special care. *Toison d'Or*, white, yellow cup, is a large and beautiful variety. *Grand Soleil d'Or* has very splendid large flowers. *States General*, bright lemon color, and *Luna*, pure white, are also very fine varieties. All the varieties are very beautiful, and fragrant, and no flower garden should be without them.

Many varieties of the Tulip come into bloom about the middle of May. The Tulip is the most brilliant and showy of the spring-flowering bulbs, and I think is the easiest to raise, and the most sure to give satisfaction when healthy bulbs of good varieties are planted and taken good care of. The earliest class is the *Duc Van Thol*. They commence blooming about the middle, and from then to the end of May. The earliest are the single and double red. The single red has small deep red flowers, with a narrow edge of bright yellow, and about six inches high. The double red grows about the same height, with semi-middle flowers, bright red beautifully edged with deep yellow. The single scarlet is a splendid variety, flowers of fine form, of the richest imaginable scarlet. The single yellow has clear, bright yellow flowers, and when planted with the scarlet, makes a splendid display. There are also the pure white, gold striped, rose, vermillion, and carmine varieties, all exceedingly beautiful.

Before the *Duc van Thol* are done, the *Tournecol* begins to bloom. There are but two varieties. The double red and yellow has enormous large flowers, the largest of any variety I have yet seen. The flowers are very full and of perfect form, very bright red and yellow, and continue in perfection for a long time. Where I to plant but one variety of Tulip, I should choose the red and yellow *Tournecol*. The other variety is the double yellow. This also has large double flowers of perfect form, and makes a rich bed, either by itself or when mixed with the other variety. The color is clear, rich yellow.

Next comes the early single and double tulips, containing many most splendid. Those who have seen only the common varieties of Tulips, as they are generally raised in the country, can have no idea of the dazzling display produced by a bed of choice varieties. Of the single Tulips, *Thomas Moore* is a very large orange-colored flower, of perfect form, and as the largest single variety I ever saw. Red and yellow of *Leyden* is a large flower, most beautifully striped red and yellow. *Canary Bird* is a very rich deep yellow. *Dorothy Blanche* is white and crimson, and is large and fine. *Vermilion Brilliant*, dazzling vermillion scarlet. *Pottshaker*, pure white. *Knight of Malta*, very large. *Grootmeester*, white and crimson striped. *Golden Caramond*, beautiful yellow. *Heirerkroon*, crimson scarlet edged with scarlet; and *Lac Boutlof*, violet and white, are most splendid varieties.

The double Tulips are yearly becoming more popular. The flowers are generally much larger than the single, and the colors are nearly as brilliant. *Purple Crown*, dark red large flower, is one of the best. *Gloria Solis*, scarlet, edged with yellow, is a fine large flower, but as it is but little different from the red and yellow *Tournecol*, it is hardly desirable to have both varieties. *Yellow Rose*, large yellow, is a fine large flower. *Grand Alexandre*, yellow striped with red, *Imperator Rubrorund*, red; *Abbas*, orange red; *Admiral Kungsbergen*, golden yellow striped with bronze; and *Crown of Roses*, large, rose color, are all good varieties, and most of them early.

The double Tulips, when perfect, are very desirable flowers, but I think they are less hardy than the single varieties, and less sure to produce perfect flowers, and this is especially the case with the late double varieties.

The Parrot Tulips are very brilliant and very large, but much less regular, and perfect in form than any other varieties. *Belle Jeune*, beautiful yellow; *Cafe Brun*, rich brown; *Large Scarlet*, and *Perfecta*, red striped, are some of the very best varieties.

The late-flowering show Tulips are a most magnificent class, and are great favorites with florists. They are divided into *Bizarres*, *Byblooms*, or *Byblizems*,

and *Roses*. *Bizarres* have yellow ground, and *Byblooms* and *Roses* have white ground, marked with various other colors. I think there is but little to choose between these; all are splendid, with tall stems, and very large and perfect cups, and of the richest imaginable colors.—*The Farmer*.

## Clematises in Pots for Spring Flowering.

The Clematises have been produced of late in so many new, varied, and beautiful forms, that those having only a superficial knowledge of them find it very difficult indeed to make a selection. The Clematis deserves to be, and should be, as common in our gardens as the rose, which may be taken as the typical popular flower. The main purpose of this paper is to show that the varieties of two of the sections of Clematises—viz., the patens type and the lanuginosa type—are specially adapted for early flowering in pots, and there is no glass structure that will grow plants, however homely in design and rude in character, but can be made very gay by means of freely-bloomed Clematis in pots during the early summer months. In cold late districts, where the vegetation is apt to suffer from the late spring frosts, it is scarcely safe to plant in the open air the early-flowering Clematises of the patens type, as they are very apt to be injured by frost. It has frequently happened that in late districts these early Clematises will develop their flowers, and then in one night a cutting frost will work them irretrievable injury. Granting that such an instance as this may be exceptional, yet it may frequently occur, and therefore, it is wise to grow a few plants under shelter, especially of the newer and rarer varieties.

Of the patens group, that is, those Clematises which flower from the old or ripened wood, the following can be recommended for their great beauty, distinctness, and decorative value; *Albert Victor*, deep lavender, with a pale bar along each sepal; *Lady Londesborough*, silver grey, with pale bar; *Lord Londesborough*, delicate mauve, with pale claret bar; *Patens*, delicate mauve-lilac, very free and effective; *Miss Bateman*, white, with chocolate-red anthers—the best white Clematis in cultivation—*Sophia plena*, lilac-purple, double; and *Standishii*, light-mauve. All the foregoing produce large finely-formed flowers with considerable freedom; and, when cultivated under glass, the flowers are prolonged for a lengthened period, as they are preserved from the effect of wet and frosty weather, and from the ravages of the wind. The varieties of the patens section just enumerated, will come into bloom before the varieties of the lanuginosa section, because the latter flower from the young growth of the same year, and are, in consequence, later.

Of the lanuginosa group, which now includes some very fine and valuable varieties, the following should be grown—*Aureliana*, porcelain blue; *Gem*, deep lavender blue; *lanuginosa*, pale lavender; *lanuginosa nivea*, pure white; and *Otto Frobel*, greyish-white. very large, and finely-formed. According to the size of the plants should be the pots in which they are placed; but 24's for the small plants, and 12's for the large ones will be found amply sufficient. Let it always be borne in mind in planting the Clematis, whether in pots or in the open ground, that it develops a large number of strong succulent roots that are strong feeders, and require liberal nutriment from which to draw the needful supplies for the plant. These succulent roots go down to the bottom of the pot, and form a dense mass; therefore, it is absolutely necessary that some very rich soil be used at potting time. Equal quantities of good loam and thoroughly rotten manure will suit the Clematis well, and, when potting, plant nearly up to the rim of the pots, leaving room for water. The flowers are thrown out on shortish stems, producing two, or three, or more from the buds, which are put forth from the old or ripened wood; and, at the same time, there will come up from the base of the plant sturdy young shoots, which will form the flowering wood of the following year.

It will be necessary to provide some appliance to which the blooming wood can be tied out and the young growth trained. There is nothing like wire frames, of oval or rounded shape; but, failing these, a stout stake placed in the middle of the pot to support the plant, or some lighter stakes placed round the pot, will do equally well. The growing wood should be kept tied to the main stake, so as not to impede or hide the expanding flowers. In the case of lanuginosa and its varieties, the young growth should be trained so as to become equally distributed, and afford a good service of flower. There must be no lack of water, for the Clematis likes and should have plenty of it, and especially manure-water when the plants are in bloom.

As soon as the plants have done flowering, remove



## Correspondence.

### Cattle Running at Large.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—I was much pleased with P's remarks in the 30th December number of the CANADA FARMER, respecting "cattle running at large." The thing is a nuisance in every particular he has mentioned, causing great loss and vexation, and I am certain the owners of the cattle are the greatest losers of all. The time lost in searching for the cattle, day after day, the small quantity of milk given by them when found, and the loss of manure while on the highway or in the woods, are all items of importance.

An intelligent farmer remarked to me the other day, that he had been in the habit in former years of letting his cattle run at large, but last summer had them enclosed, and the result was a much larger average quantity of milk, whilst at the same time his cattle kept in far better condition.

Your correspondent has failed, however, to mention the most important reason that can be given why cattle should not be permitted to run at large, and that is the large expenditure the habit entails in the matter of keeping up fences. I consider the heaviest tax a farmer has is self-imposed in this matter. In Nova Scotia, (and I suppose in Ontario also), farmers have a fence along each side of the highway, and every field on the farm is separately enclosed. Some farmers say, "We cannot help it." I answer, Yes, we can. Give us a law that will compel all farmers to keep their stock in enclosed pastures, in other words, keep them at home. Every one who has tried the experiment of keeping farm stock off grass land in fall and spring, letting the after-grass constitute a winter covering to the roots, whilst at the same time it acts as a mulch and fertilizer, knows that no one improvement (simple as it is) that has been tried pays so well. The man who allows his cattle to trample down his grass lands, spring or fall, however good a farmer in other respects, will never make much headway. Where, then, is the necessity for having more fencing than will enclose the cattle in pasture? Nova Scotia farmers by keeping their stock thus enclosed, would at once get rid of the highway nuisance, and save, on an average, 400 panels of fencing. The first cost of these, at 50 cents a panel, is \$320, and the yearly interest at 8 per cent. on the outlay \$25.60. Add to this \$5 a year for repairs, and we have the snug little sum of \$33.60.

Then if we take into account the actual loss of land covered by these fences, how much they are in the way of the plough, harrow, and mowing or reaping machines, the important part they play in the formation of snow drifts, &c., &c., surely it would be a wise policy to dispense with them.

Hoping, Sir, that this important subject will be taken up and discussed by abler writers than myself.

I remain, &c.,

T. A. McDONALD.

Pictou, Nova Scotia.

### The English Hawthorn.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—In your issue of 1st March, a Plympton correspondent inquires about the honey locust, as a hedge plant. I have seen a number of plants tried for hedges, but there is none of them equal to the English hawthorn. It stands our most severe winters well, and can be readily cut back in summer. The seed (haws) was first introduced into this neighborhood about twenty years ago, and I cannot recollect of a single instance in which the plant was winter killed. The hedge raised from that seed is now in its natural state, about twenty feet high,

never having been cut back, and has been doing duty for the past ten years. There are about twenty farmers in this neighborhood growing these hedges, and their experience is, that where the hedge is kept clean, and the soil stirred or cultivated, the growth is fully as rapid as in England.

Four years ago I purchased 1,200 quicks at 1 cent each, and planted thirty rods of hedge. That hedge is now 3 feet high and 2 feet thick at the bottom, having been cut back regularly every year about the last of June, and constitutes the only protection to my orchard.

In the CANADA FARMER of May, 1865, I gave your readers my plan of raising hedge plants. It will afford me very much pleasure to furnish any further information required.

Yours truly,

W. C. S., New Hamburg.

[The result of practical experience, such as the above, is always acceptable.—Ed. C. F.]

### Sheep Racks.

(To the Editor of the CANADA FARMER.)

DEAR SIR:—Will you please publish in the FARMER a good plan for making a sheep-rack to place in a yard where cattle run for a short time during the day, and oblige,

G. W. M.

REPLY: We give below two illustrations of a rack, which appeared in a former volume of the CANADA FARMER, and which has given much satisfaction to all who have tried it.

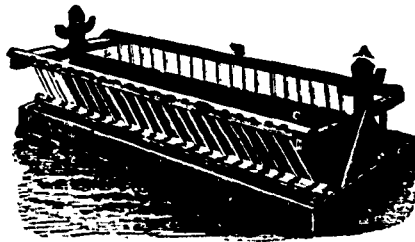


Fig. 1.

In Figure 1, A is the centre post or standard, of 2x4 scantling, 4 feet in height. B is the rack, 2 feet wide; the slats 4 inches from centre to centre. C is the centre board, 16 inches wide, close at the top, 8 inches apart at the bottom. D is the trough which catches the seed and fine stuff pulled out with the hay; space from bottom of rack to edge of trough 4 inches. E is the arm, 42 inches long, to support the upper rail of the rack when thrown open; the entire width of platform 42 inches; side pieces to platform 5 or 6 inches. When the hay is placed in the rack, the upper rails are pushed along the arms towards the centre post until they drop into the grooves which are seen near the post, Fig. 2. The rack thus lies on the hay, and from the position of the feed to the sheep, there is no dropping of seed &c., into the wool and eyes, which is the case with racks inclined the usual way.

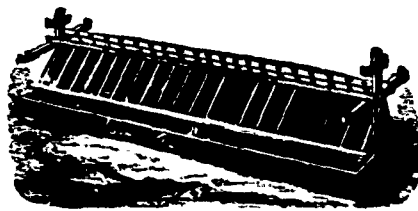


Fig. 2.

The rack is hoisted to the upper pin or notch when the long hay was been eaten; then the trough affords an opportunity for the sheep to eat the seeds and fine hay. The trough is also a good place in which to feed grain or salt.

### Ants and Pine Trees.

A correspondent (J. G. Vynar, Ont.,) complains that he "has several young pine trees almost destroyed by the thousands of young ants that seem to hatch on the branches of the trees, and cleave to them till about one-third grown; they seem to take all the sap from the branches till the trees are almost destroyed. The ants, for the last two years, have appeared at the commencement of summer."

Our correspondent has evidently confounded together two very different insects that infest his pine trees, the ants and the plant-lice, (aphides.) Young pine trees, like most other trees and shrubs in this country, are liable to be attacked by colonies of plant-lice, that establish themselves on the ends of the branches and draw out the life juices of the plant. Those on the pines are generally of a black color, slightly hairy, and sometimes appearing as if lightly dusted with a white mealy powder; among them may be frequently observed a few winged specimens. Each of these insects, and they appear in myriads—tens of thousands in a single colony—is furnished with a sucker or beak, which it inserts into the twig on which it rests, and draws up through it the sap of the tree. Being so small in themselves, they could do but little damage were their numbers kept within any moderate bounds; but they increase with such enormous rapidity that no plant, if left to itself, can withstand them. Happily, however, nature has provided us with a number of other insects that live entirely upon these noxious creatures and serve generally to keep them in check—such as the different species of lady-birds, syrphus flies, lace-winged flies, &c.

If artificial means are required for the preservation of plants from these insects—as in our correspondent's case—we can recommend nothing better than strong soap-suds, which can be dashed over the affected branches. The application of this product of the weekly "washing-day," continued for a short time, will effectually cleanse the trees from the pest, and restore to them their proper vigor and freshness. As fresh broods are liable to appear from time to time, it will be necessary to keep an eye upon the trees, and not rest satisfied with one victory over the enemy.

The ants, that our correspondent not unreasonably supposed to be the authors of the mischief, are in this case quite harmless, though injurious enough in other ways. They climb the trees and infest the colonies of plant-lice only for the purpose of obtaining from these little insects the sweet juices they have drawn out of the plant. The process resembles very closely the milking of cows—so much so that the aphides are often called the "Milk Cattle of the Ants." If the plant-lice are got rid of, our correspondent will find no more trouble from the ants.

### Grapes for South Monaghan.

An esteemed correspondent asks the kinds of grapes that are best for cultivation in South Monaghan. It is very difficult to give a satisfactory reply to this question, on account of the scanty means of information. The writer has attended every Provincial Exhibition for many years past, and during all that time has never seen a bunch of grapes on exhibition that came from South Monaghan. Nor has he been so fortunate as to receive any communications from that part of the country giving the results of trials with any of our hardy grapes. It would be of great benefit to farmers and fruit-growers throughout the Province if they would make the CANADA FARMER the medium of communicating their successes and failures to each other. A short letter from any one residing in South Monaghan or in that part of the County of Northumberland or of Peterboro' having a similar climate, giving an account of results of trials with any of our out-door grapes, would be of great interest and benefit to our correspondent, and doubt-

less to many others who reside in that vicinity. Will not our friends avail themselves more freely of the opportunity for this interchange of views and experience which the CANADA FARMER affords.

In the climate of that section it will be very desirable to secure those varieties which ripen early, and which require the least amount of solar heat to perfect their fruit. We suggest to our readers in that section that they will find the following varieties most likely to ripen, viz.; Creveling, Eumelan, Essex, Hartford Prolific, Telegraph, Delaware, Massasoit, and possibly Martha.

It will be advisable to take the vines down from the trellis every autumn and lay them upon the ground, else the very severe frosts of winter will kill the fruit buds. We presume that the snow can be relied upon to cover them during the winter; if that be so, the vines will not need any other covering, but if the snow cannot be depended upon, a few boughs from some of the evergreens that are no doubt abundant there can be laid over them, and will give them sufficient shelter.

**Potatoes and Potato Diggers, &c.**

(To the Editor of the CANADA FARMER.)

DEAR SIR,—Will you kindly answer the following questions:—

- 1st. Is there a reliable remedy for ticks on sheep and lambs, and where can it be procured?
- 2nd. What varieties of potatoes do you consider the best for yield and market?
- 3rd. Where and at about what cost can I procure a good potato-digger?

A. S.

REPLY.—(1.) "Miller's Tick Destroyer," advertised on another page of this issue, is the best thing of the kind we know of. We have read scores of testimonials as to its efficacy, and have yet to hear of a single failure, where properly applied.

(2.) The Early Rose, Late Rose, White Peach Blow, and Garnet Chili varieties are among the "favorites." See article entitled "New Varieties of Potatoes," page 51, in current volume of the CANADA FARMER.

(3.) We know of two or three manufactories of the article, but must, for obvious reasons, refrain from giving names. Our advertising columns, however, are at the disposal of any manufacturer who may wish to enlighten our correspondent.

**Drill Sowing.**

(To the Editor of the CANADA FARMER.)

DEAR SIR.—Please state through the columns of the FARMER, the quantities of wheat, peas, oats and barley usually sown to the acre with the Grain Drill, making allowance for rich and poor soil, and oblige,  
A SUBSCRIBER.

REPLY;—So much depends upon the nature and quality of the soil, that it is difficult, if not impossible to give a rule that will apply in all cases. Very common quantities to sow are as follows:

Barley.....	1½ bushels.
Peas.....	2 bushels.
Wheat.....	4 to 5 pecks.
Oats.....	1½ bushels.

We saw, last summer, on a very light soil, sandy and hilly, a ten acre field of oats sown at the rate of 11 lbs per acre, which looked splendid, and yielded equal to any other field in the neighborhood. The straw was stronger, and the heads better filled than in adjoining fields sown with 2½ bushels per acre, and it was noticeable that it kept green all through the dry weather, while the fields adjoining were quite yellow in the leaf.

TO CORRESPONDENTS.—The communications of "A Huronite," "W. M. Yeomans," "Subscriber," Esquicing, "A Subscriber," Durham, "A. B." South Monaghan, "A Voice from Dumfries," &c., will appear in our next issue.

**THE CANADA FARMER**

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ON THE 1st AND 15th OF EACH MONTH,

AT

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FREE OF POSTAGE.

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No subscription received for a less term than one year, commencing from the month of January.

THE CANADA FARMER is stereotyped, so that copies of back numbers can always be had.

A limited number of advertisements are inserted at twenty cents per line for each insertion. There are twelve lines in one inch of space. Advertisements under ten lines are charged as ten line advertisements.

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**THE GLOBE PRINTING CO.,**  
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*The Canada Farmer.*

TORONTO, CANADA, APRIL 1, 1874.

**Report of the Commissioner of Agriculture and Arts, for 1873.**

This well executed volume consists of a *resume* of the proceedings of the Bureau of Agriculture and Arts during the past year, and of reports of the numerous societies, in most cases much condensed, which are in connection with the Department. In noticing this important document our space will only allow of a few brief references to some of its more salient points, as indicating the state and progress of the industrial arts for 1873.

The Commissioner congratulates His Excellency on the continued prosperity of the Province, particularly in reference to the results of the last harvest, which, as shown in the "Crop Returns" that we publish elsewhere, proved much more satisfactory than could have been anticipated in the earlier part of the season, when, from the intensity of the prevailing drought, the prospect was of a truly gloomy character. Genial rains came just in time to save the crops in our frontier counties; the more northern ones being much less affected by drought, owing, probably, in part to the influence of the forest. Wheat and other grains in several localities even exceeded an average. Hay and turnips were universally short, the latter in many places a failure. It is an indication of progress that improved machines for cutting straw, cornstalks, &c., are every year coming more into use, thereby greatly economizing food for stock, which are being brought through the winter in a more thrifty condition than would have otherwise been the case. The management as well as the breeding of live stock is a matter that requires and admits of much improvement, and a sound system of practice in relation thereto is essential to the advancement of agriculture.

The *Agricultural and Arts Association* continues to make steady progress, its annual exhibitions being unsurpassed on this continent, and would favorably compare with not a few of far wealthier Societies in the Old World. The tabulated statement of the amount of premiums taken by the different counties is interesting and suggestive, and will well repay a

careful inspection by exhibitors throughout the Province. We are glad to find that such is the increasing interest felt in short-horn cattle, that the Council have on hand material for a third volume of the *Canadian Herd Book*.

**Agricultural Societies.**

In Appendix A we have carefully prepared Analyses of nearly 400 Agricultural Societies, which clearly indicate their financial condition, and from which can be gathered interesting information relative to the various amounts given in prizes to Agricultural and other industries. Some of these returns are accompanied by brief reports, while too many consist only of a bare financial statement. Most of the Societies appear to be in a satisfactory state, and are doing a good work; whilst others are struggling to maintain a feeble existence, and require the infusion of more vigor and zealous co-operation. We gather from several of these reports, that the desire for larger and fewer shows is steadily increasing, a tendency clearly indicating progress in public opinion. The characteristic weakness of the present system is the multiplicity of small exhibitions, which but feebly elicit a healthy competition or command a sufficient degree of public interest. It is therefore satisfactory to find here and there in these reports, both county and township, indications of wider and sounder views, and that two or more Societies occasionally unite, as the Statute admits, for sustaining a larger and better exhibition. The Commissioner strongly recommends Societies to unite for exhibition purposes, and "the occasional omission of exhibitions for a year or two, devoting meanwhile the whole of available funds to the introduction of improved stock and seed grain; objects which all practical men must feel to be of supreme importance."

**Mechanics' Institutes.**

There appear to be about 50 of these Societies in connection with the Department and receiving Legislative aid. In towns and cities most of these Institutes, in addition to a library and reading room, have evening classes for the instruction of mechanics, and occasionally lectures of a popular character in science and literature. In smaller places the operations of these organizations seem to be principally confined to a library, with sometimes a reading room, with a social gathering once or twice during the year. These Institutes, with proper care and vigilance, are no doubt capable of doing much good, and it would seem from the Report before us that most of them are making steady improvement.

**Fruit Growers' Association.**

From the report of this Society (Appendix C,) it is evident that this large and popular organization is doing a valuable and much needed work. It is now by no means confined to the fine fruit-growing district of the western peninsula of the Province, but is pushing its operations into the newer settlements of the great north-west; and by its admirable system of furnishing annually its numerous members—now amounting to upwards of 3000—with young fruit trees for experimental purposes, much practical and reliable knowledge will be in a few years obtained on the adaptation of the kinds of fruit to the soil and climate of all sections of Ontario. The report will richly repay a careful perusal; and the distinguished honors which the Society won last fall in Boston, at the Anniversary of the United States Pomological Association, demonstrate the capability of this Province of producing many of the choicer kinds of fruit of the highest character.

**The Entomological Society.**

A fellow worker with the above and the Agricultural Societies, continues to pursue the even tenor of its way, and the intelligent reader of its Report (Appendix D,) will acquire much useful information on several subjects connected with rural pursuits. The Society's report is principally confined to a popular and practical exposition of entomology to the pursuits



and want of the farmer and gardener, while its excellent little periodical, "The Canadian Entomologist," treats in a more scientific manner of the entomology of Ontario, including also that of the Dominion

Veterinary College.

From the reports sent to the Department, this valuable institution continues to evince a healthy development; from a very small beginning it has grown up by degrees under its able Principal, assisted by zealous co-laborers, to its present magnitude and efficiency. We are pleased to observe a continued tendency towards expansion, especially in its curriculum of study and standard of examination; and it is much to be hoped that the authorities will continue to avail themselves, for the future advancement of the school, of the most important facilities afforded by the discoveries of modern science, bearing on the theory and practice of veterinary medicine.

School of Agriculture

As the much-vexed question regarding the site for this institution has at length been finally settled, it is hoped that all former differences will be forgotten, and a patriotic spirit evinced in doing everything in our power towards establishing the Agricultural School of Ontario on a sound and permanent foundation. We are glad to find from the Commissioner's Report, that the main object contemplated by the school and experimental farm is not only to impart to our youth intended for rural pursuits the necessary amount of scientific knowledge to give them a rational interest in the same, but likewise to train them effectually for performing the work of the farm with their own hands. Its motto will be, Practice with Science. By following out by degrees the programme laid down in the elaborate and lucid report of the Commission appointed by the Government to investigate this matter, (Appendix G,) there is every reason to believe that we shall escape the more serious errors that have too frequently been made in the commencement of these enterprises, and that after the lapse of a few years this Province will have a training institution that will fully meet the necessities of the country, and the wants of our agricultural youth, "so as to improve and elevate the time-honored pursuits of husbandry, and increase continually the wealth, progress, and happiness of the country." The public will learn with satisfaction that arrangements will be sufficiently advanced in a few weeks to admit of a limited number of pupils during the approaching spring.

As the Dairywomen's Association of Ontario has been incorporated so as to participate in the Legislative grant, the Commissioner anticipates some important returns relating to the dairy interests of the Province for his next report. The progress hitherto of this department of agriculture has been truly encouraging, and we believe that it is destined to become an immense source of wealth, and that it will in no small degree tend to check in the future the injurious effects produced in the soil by constant and injudicious cropping.

In drawing to a close this hasty glance of the Commissioner's Report, we must congratulate the hon. gentleman on the efficient manner in which it is evident the affairs of the department are administered; and we trust that, in the interests of agriculture, and indeed of the whole Province, that the increased efforts which the Government are now making for securing a larger number of agricultural laborers and female servants the approaching season—the most pressing want of the country—will be eminently successful.

Machine Accidents.

We took occasion some time ago to refer, briefly, to the Bill introduced by Mr. Clarke of Wellington, for the prevention of machine accidents. The measure, we are happy to state, has now received the sanction of the Legislature, and will come into force on the 1st September next. The following are its principal provisions:—

"1. All persons in the Province of Ontario owning or running any thrashing machine, wood-sawing or other machine, which is connected to a horse-power by means of a tumbling rod or line of shafting, shall cause each of the knuckles, couplings or joints, and jacks of such tumbling rod or line of shafting, to be

safely boxed or secured while running, with wood, leather or metal covering, in such manner as to prevent injury to persons passing over or near such tumbling rod and the knuckles, couplings or joints, and jacks thereof; and shall cause all oiling cups attached to arbors for journals to which driving belts are attached, to be furnished with tubes of tin or other material extending above the belts in such manner as shall prevent danger from oiling when the machine is in motion, and shall further cause a driver's platform to be placed on any horse power, used for driving machinery, of such size as to cover the gearing and prevent accident arising to any person from contact with said gearing."

The penalty for a violation of the Act is a fine of not less than \$1 nor more than \$20, and costs, or in default of imprisonment for not less than two nor more than twenty days.

No action shall be maintained, nor shall any legal liability exist, for services rendered by or with any machine referred to, when the above law has not been complied with.

The fines go one-half to the complainant or prosecutor, and one-half to the treasurer of the school section in which the offence was committed; for the use of the public school in such section.

Proceedings for violation of the Act must be commenced within thirty days of the offence.

No conviction under the Act shall be annulled for any defect of informality so long as no substantial injustice results; and all convictions are appealable.

Average of Grain per Acre in Ontario, 1873.

The following compilation is from "Crop Returns" furnished by Agricultural Societies, forming Appendix F to the report of the Commissioner of Agriculture for 1873:

Table with columns: Electoral Division, Winter Wheat, Spring Wheat, Oats, Rye, Barley, Peas. Rows list various Ontario regions like Addington, Algoma, and others.

The above returns show that the grain crops of last year, with the exception of spring wheat, was fully up to the average of late years. The difference of averages seems to have principally arisen, as gathered from the statements accompanying the returns, from variations in the time and quantity of rainfall and the depredations of insects, though it would appear that severe injuries from the latter cause have been confined to a few crops in narrow localities. Fall

wheat was variously affected, according to the degree of winter exposure; in some localities most seriously injured or destroyed, while in others the yield was considerably above the average of late years, and of excellent quality. Spring wheat generally was much inferior, the season having been peculiarly unfavorable to that crop; but where timely rains prevailed the yield reached an average. Turnips were similarly affected, and the crop generally inferior, and in some places quite a failure. Potatoes seem to have been on the whole a small yield, but the quality is almost universally reported as being sound and good, and but little affected, except in a few localities, by the Colorado beetle. On the whole, the crops in Ontario in 1873 proved very much better than could have been anticipated early in the season, when severe drought prevailed. The copious rains of June came just in time to save the labors of the husbandman from threatened destruction.

Important Sales of Thoroughbred Stock.

Breeders of Short-horn and other thoroughbred stock, and farmers wishing to improve their breed of cattle, sheep, and swine, will be interested in the important sales appointed for the early part of the ensuing month. The first of these will take place on the 7th of April, at Birch Grove Farm, Thornhill, when Mr. R. J. Stanton will offer for sale the whole of his herd, a choice lot, consisting of eighteen females and three bulls, mostly imported, or bred from imported stock. Some Cotswold sheep and Berkshire swine are also in the catalogue.

On the following day the executors of the late John Snell, of Edmonton, will sell by auction at that place a choice lot of thoroughbred cattle and sheep, and the imported Berkshire boar, Sir Heber Humphrey. Among the cattle are the imported bull, British Baron, and the cows, Golden Drop 1st and Crimson Rosebud. The herd consists of fifty females and ten bulls.

On the 9th of April, Mr. Hugh Thomson will offer his entire herd of Short-horn cattle, twenty-three females and three bulls, which includes the imported cows, Golden Drop 2nd, Raspberry, Cowlip, Minnie, Halkerston, Catharine, and Miss Ramsden 5th, the imported Clydesdale stallions, Forfar Chief, Sir Colin, and Sir Robert Bruce, along with some mares of the same blood.

On the following day, Mr. J. S. Smith, of Ailsa Craig, Ont. will sell without reserve his entire herd of fine Short-horns, comprising seventeen females and five bulls, together with a flock of Cotswold and Leicester ewes and lambs.

INTERESTING TO FARMERS.—We had the pleasure of seeing to-day a magnificent specimen of the bovine species, in the shape of a six-year-old milch cow, bred and owned by Mr. Richard Rivers, of Carrick. This animal turned the scales at 1,684 lbs., and was sold for the snug little sum of \$115. We are informed by Mr. Rivers that he has succeeded in bringing his stock to its present state by careful breeding through common grade cows and thoroughbred sires. If one farmer can accomplish so much in a few years by a little careful attention to breeding, how much might not be accomplished if our farmers generally would pay more attention to this matter? Fine stock in the mother country is considered as the best indication of good farming; and, notwithstanding the length and severity of our Canadian winters, if more attention was paid to the raising of grass and root crops and to careful breeding, our farms would soon be well stocked with such specimens as the above, and our farms would soon compare favorably with the best farms in England. Too much grain and too little stock is fast ruining our virgin soil, rendering the application of artificial manures an absolute necessity in many parts of our country. Surely the rearing of stock is more profitable than exhausting the soil; and we hope that the example of Mr. Rivers will be generally followed by his brother farmers, not only in Carrick, but throughout the whole country and Province.—Walker's Telescope.

CANADA SHORT-HORN HERD BOOK.—We have been requested to intimate that the time during which entries will be received for vol. 3rd has been extended for several weeks. Hand in the pedigrees, gentlemen.

PLEURO-PNEUMONIA has again made its appearance in Aberdeenshire.

THE EXPENDITURES on account of the Indian Famino have cost the Home Government, up to the end of February, \$7,500,000.

THE twentieth volume of the English Herd-book, now published, contains the pedigrees of 2,251 bulls, beginning with 30315 and ending with 32598. The cows and their produce number nearly 9,600.

THE EMIGRATION from Great Britain in 1873 was the largest that has taken place in any one year since 1854. The grand total amounted to 310,612, and of these 29,015 settled in the British North American provinces.

WHILE in Muskoka, Ont., Joseph Arch met with some Yankees squaring some pine trees for exportation. "You're an Englishman?" it was asked. "Yes, I am," he replied. "Waul, I never knew one of your people who could square timber well enough for us." "You never did?" said Arch; "lend me your axe." Without any ado Arch took the axe and squared the timber to the full satisfaction of the critics. He was offered \$45 a month to cut timber.

THE BRITISH EMPIRE now possesses 7,760,419 square miles of territory. The United Kingdom, 121,608 square miles; the colonies, 6,685,021; India and Ceylon, 962,820. There are 38 persons to a square mile in the Empire; 260 in the United Kingdom, 201 in India, 141 in the colonies. In some parts of India the density of population more than equals that of England. The Queen rules over 231,762,593 souls; her people dwell in 41,142,651 houses; and the area of the lands they inhabit is not less than 7,760,419 square miles.

AT a recent sale of a very fine lot of large, powerful cart horses in Liverpool, the following prices were given: \$276, \$361, \$306, \$317, \$289, \$283, \$366, \$378, \$233, \$244, \$306, \$361, \$361, \$455, \$317, \$400, \$366, \$314, \$322, \$328, \$405, \$328, \$144, \$329, \$355, \$339, \$355, \$261, \$378, \$144, \$306, \$306, \$284, \$322, \$322, \$306, \$500, \$339, \$348, \$283, \$283, \$326. The animals were mostly five and six years old, only a few seven. The whole lot was represented to be in fine order and of great size, averaging seventeen hands in height, and probably 2,000 pounds in weight.

IMPORTANT ITEM FOR FARMERS.—A president of an agricultural society calls attention to the fact that there are, in a standard legal barrel, only one hundred quarts, while the ordinary flour barrel most in use among the farmers in the sale of potatoes and apples, contains nearly one-eighth more. Farmers sell their produce in flour barrels, and merchants transfer the same to standard barrels, making a profit on quantity as well as on the price. In the sale of eight hundred barrels of potatoes from a farm, the proprietor loses one hundred barrels, worth two hundred and fifty dollars, for which he might as well be paid. The middleman, not the consumer, profits by this. Farmers see to it that you employ the one hundred quart barrel hereafter.

BREMEN INTERNATIONAL AGRICULTURAL EXHIBITION.—The Agricultural Society of Bremen propose holding an International show, on the occasion of their twenty-fifth anniversary. The exhibition will be held from June 13 to 21, under the immediate patronage of the Crown Prince of the German Empire. The objects exhibited will be arranged in the following sections:—1. Cattle, including horses, horned cattle, sheep, pigs, goats, and rabbits. 2. Fat Cattle. 3. Poultry. 4. Fish culture and products. 5. Bees and silkworms. 6. Covert culture. 7. Agricultural products and manufacturers. 8. Horticultural products. 9. Agricultural machines, and 10. The results of scientific researches. The prizes awarded will amount to \$25,000, and opportunities will be afforded to exhibitors to dispose of the articles exhibited by auction or otherwise.

A LITTLE FARM WELL TILLED.—In the last volume of the journal of the Royal Agricultural Society of England, there is described a farm in Ireland consisting of thirteen acres, occupied by Patrick Clear. The report describing the position of this small farm, for which the tenant pays a rent of six dollars and a quarter per acre, says, the little farm, including cottage, out-houses, and yards, is a model of neatness. The crops were grass, oats, roots, and barley, in a four-course rotation. There were two acres in permanent grass, which was kept for pasture for three cows and a horse. The young grass for mowing is top-dressed with guano and compost. The root crops were good, and were perfectly free from weeds. The headlands of the fields were planted with cabbages, and there was not a vacant spot upon the farm. The hedges and gates were in good order. A good many pigs and a number of poultry are raised every year.

## Breeder and Grazier.

### Hereditary Malformation in Cattle.

A curious instance of hereditary malformation has come under our notice within the last four years; and it is one specially remarkable as showing that proportion of blood cannot be depended on to secure (or exclude) any given desirable (or undesirable) characteristics. A well-to-do and enterprising North Lancashire farmer some fifty years ago began stock-keeping by the purchase of some excellent nameless Short horns from Darlington market, and from that time he and his son (who succeeded him about 34 years since) have maintained the practicable usefulness of their stock by choosing bulls of good frame and quality; generally, but not invariably, with some known pedigree. The cows milk exceedingly well, the farm turns out abundance of cheeses, which are allowed to be of the very top quality produced in the district, and if a cow at any time fails to breed, she is sure to bring her owner a handsome profit from the butcher. As much as 16 score a quarter has been weighed to the credit of one of these "misfits," fed up to only the average market standard of fatness. A few months after beginning business on his own account, say 33, or at least 32 years ago, the present farmer bought in a good useful cow of unknown descent. The animal had a peculiarity of the ears, which seemed as if long strips had been cut out of them, from the tip towards the root, at an early age. The natural supposition was that she had been marked as a calf or "stirk," to distinguish her from her companions. Among her calves, however, subsequently bred upon her new owner's farm, were two or three with ears snipped like her own. They in turn produced offspring, and in each generation, from that time to the present, the snipped ears have been constantly transmitted, in the direct and continuous female line alone, not in the case of every calf, but in one or two instances in each generation. Whenever the peculiarity is inherited, it is without modification. The snipped ears of 1874 are as deeply snipped as those of 1841, although six or seven generations of bulls with ordinary ears have intervened, and the proportion to the bought dam in her descendants is reduced to one sixty-fourth of one-hundred-and-twenty-eighth part, according to the law of geometrical progression, unquestionably applicable to pedigrees, if we credit to each parent one-half the blood of the immediate offspring. The formation described has never been known to skip a generation and reappear. When a heifer of "the jump-eared sort," as their owner calls them, comes with plain ears, she invariably breeds plain-eared calves. How and at what date the snips had their origin, we cannot say. Possibly they first appeared in the cow purchased 33 years ago; perhaps they are transmitted from remote antiquity; but when we consider that each "cross," or generation doubles the number of so-called chances against recurrence, and that while there is no abatement whatever in the examples there is but little diminution in their proportionate number, we must conclude that the probabilities belonging to proportion of blood may be powerfully overruled.—*Bull's Messenger.*

### Curious Points in Breeding.

The subject of pure breeding at the present time is of more than ordinary interest. Some of the most eminent breeders of Short-horns have combined to prevent, henceforth, delusive names and false pedigrees being palmed off upon judges and buyers of stock. There may be something like a plea for those who have been considered as next door to delinquents. It cannot be expected that we can alter colors, make a roan cow a red, or a red bull a white, as some owners can do in catalogues in the course of a seasonal round. But a pamphlet we have taken the trouble to fish up may account to some extent for the alteration in the color of animals, where no impure blood has been permitted to mix. In early Jewish history we have the statement that Jacob, by the peeling of wands, secured the flock it was his intention to procure. In the 36th chapter of Genesis we are told that "Jacob took him rods of green poplar, and of the hazel and chestnut tree, and pilled white strakes in them, and made the white appear which was in the rods. And he set the rods which he had pilled before the flocks in the gutters in the watering troughs when the flocks came to drink, that they should conceive when they came to drink. And the flocks conceived before the rods, and brought forth cattle ring-straked, speckled, and spotted." And by this means, Jacob, we learn, prospered. Dr. Harvey's pamphlet, to which we refer, and which is

dedicated to the officials of the Highland and Agricultural Society, records some wonderful cases of psychological sympathy in the human species, where results were obtained which could not have possibly been expected in the ordinary course of nature. With these we do not meddle, but it is interesting to inquire how far sympathy affects and modifies creatures which are supposed to have no reasoning faculties—which have instinct without intellect. According to Dr. Harvey, in his pamphlet issued twenty-two years ago, the sympathy in the brute creation has a marvellous effect in modifying or changing colors. For instance, he tells us (and we have verified the story, Mr. M'Cambie, M.P., assuring us the narration was perfectly true) that "In 1840, twenty cows of the black polled Angus breed, belonging to Mr. M'Cambie, in this county, and whose stock is perhaps the finest in this kingdom, produced as many calves, all of them black and polled, except one single calf, which was yellow and white spotted. Mr. M'Cambie had, as was usual with him, taken the precaution of causing the cows, both before and during their pregnancy, to mix with none, save perfectly black cattle, except in respect of the mother of this calf, which cow had unwittingly been put to an out-farm to be starved in order to fit her for the bull. There, for a considerable period, prior to her being served with the bull, she had grazed with a yellow and white spotted ox, of which ox the calf she subsequently bore was the very picture—the likeness, however, extending no further than to the color, and the calf still retaining the shape and configuration of its parents, which were both of the same breed and color. Mr. Cruickshank, Sittytton, has the largest Short-horn herd in the world. It is stated by Mr. Harvey that in 1849 the whitewashing of the houses produced twelve white calves, where formerly there were only two. At that time the color was by no means fashionable; and the animals were sold off at once, roans being then the tone in the Short-horn world. In 1861, at the International, a white cow took the prize, the owner being Joseph Webb, of Southdown celebrity, and since that time whites have come to the fore at the exhibitions. Last year two whites gained everything before them wherever they went. Royal Windsor (Mr. Outherwaite's), and Mr. Linton's Lord Irwin, keeping neck and neck—the one invariably winning when the other was not present, and both in their career sometimes changing places, but always before red or roan. Fashion in Short-horn calves alters as favoritism in bonnets, but it would be worth while, we think, as a correspondent points out, to have a little more consideration as to whether the condemnatory mark of a beast can come from an animal simply looking at another.—*London Farmer.*

### Open Farm Yards and Lung Disease.

Whether or not covered yards are considered applicable in our country, the reader will find some useful hints in the following, from the well-known agriculturist, Mr. Mechi, of London:—

"I have a very strong conviction that open yards are the frequent cause of lung disease. Being exposed to the rainfall, large quantities of straw are thrown down to absorb the water, and make a dry bed for the cattle; but I observe that when the bullocks get up, a small cloud of steam arises from the spot he has left, and that also steam comes from the under part of his body. This proves that his weight has caused the water to rise up under him through the straw, and that he has been lying on a heated, wet bed, instead of a dry one. I know of many cases of pleuro from open farm yards, but I do not hear of any in covered and enclosed yards; for there, if scantily and properly littered, the urine and excretion are trodden into a solid paste, and there is no heat, fermentation, or smell. It is the rain water that in the open yards causes the mischief. All the years I have had my animals in covered and enclosed yards there has been no lung disease, but the covered yards should have paved and cemented floors, or the urine would soak into the soil, and the manure be liable to heat. There is no drainage from a covered yard, all being absorbed by the litter, and the whole forming a homogeneous mass, fit to go at once to the land, without making a dung heap. Of course, there must be proper ventilation. The advantages are health and cleanliness of animals, more progression, with a smaller consumption of food, and less waste of straw, and a considerable economy of horse and manual labor. The trilling increase of expense in building is much more than covered by the numerous advantages. We know that pigs get lung disease (heaves) by lying on a wet and heated manure, and my belief is that cattle are often similarly injured. If the yards are not cleared before April and May,

fermentation takes place, and animals then are liable to disease. The salt urine (without water) does not injure animals lying on the straw saturated with it. My sheds are ventilated on Watson's principle, the opening in the roof being divided by a deep dependent board. I have observed that in covered yards cattle are cleaner and less bedaubed or besmeared than in the open farm yards. On our system of close folding sheep with iron hurdles on wheels, which are removed every twelve hours, there is no fouling of the land or tainting of the food, which takes place to a considerable extent where sheep roam over their food."

### Feed for Cows.

This subject was discussed at a recent meeting of the Wisconsin Dairymen's Association. We quote from the *Western Rural*:

Secretary Hoard said that his father had kept fifteen cows, twelve sheep and two horses, on thirty five acres of rather poor land in New York. He grew corn fodder largely and bought no corn-fodder, and but little grain. It is a mistake to think dairying will not succeed in our uplands; they are often better than the marsh lands. Our uplands are, however, too dry. It will help them much to dress the meadows and pastures with manure.

Mr. Jennings had sown for two seasons corn for fodder, drilled thickly in rows three and one-half feet wide. Some fine ears were produced. The fodder was very valuable.

Mr. Perrot sows three bushels of corn to the acre, broadcast; ploughs deeply; cuts with a strong reaper. It only grows five or six feet high. Harrowed five or six times when thoroughly dry. In cutting slow, it is better to cock before it is much wilted. Mr. Hooge houses his clover same day it is cut; cut when green and mixes with equal bulk of straw. Mr. Morrow thought corn fodder grown in drills north and southward would give best results. Mr. Perrot admitted the quality would be better, but thought the quantity less. Mr. Hoard thought he did not sow corn for ears, but to get succulent food. President Hazen had sown broadcast and in drills, had obtained best results when drilled in rows three feet apart, one bushel of seed to the acre. In feeding in summer, he lets the stalks wilt twenty-four hours. For winter feed, cuts before the stalks have become dry and hard. The Sandford corn is the best variety he has ever tried. Both corn and stalks are sweeter than the Dent corn. Mr. Barrett had no difficulty in cutting the corn when drilled, two bushels of seed to the acre, with a reaper, cutting one row at a time.

### Breaking Colts.

A colt should be handled every few days; he should early feel the bit, the bridle-reins, and the surcingle early learn to draw light loads, and not be afraid of sudden noises. It is no way at all to bring up a colt to be as wild as a deer, or to kick at the slightest provocation. By the time he is old enough to be used he should have become thoroughly trained, the time of his subjection having extended through all his previous days. We have known farmers who allowed their colts to grow up without the least handling. It would be almost impossible to catch them unless they were driven through a lane into a yard and cornered, or were induced to enter the stable, where it was considered a feat to get on the halter. The "breaking," which is a bad word, is considered a great event, and often some public day will be selected. Being caught, the colt is put on by a feat of dexterity, a fearless and strong young man is selected to mount him, and when he succeeds great is the admiration of the beholders. The horse is simply frightened; he would run, but the curb bit restrains him, and he can only rear and kick within limited bounds. To make him behave himself a rawhide or black-snake whip is applied to his sides, and even over his head, and we have seen the flesh made bare. The poor creature, utterly unable to understand what is required, trembles in every muscle and nerve, and but last, finding out the extent to which he is to be tortured, submits, and then he is declared "broken." Truly he is broken, as much so as a broken merchant, and if he does not from that day become balky or vicious, it will not be because his owner failed to take the best possible means to make him so.—*New York Tribune*

**LICE ON SWINE.**—A correspondent of the *Cincinnati Gazette* cures his hogs of lice as follows: He nails three or four large copper cents to the bottom of the trough in which they are fed, and the lice all leave. The remedy he asserts is harmless, and has never failed when tried, in his section.

## Veterinary Department.

### Parasites in Animals.

#### Definition of Parasites.

In the first place, I think it will be as well to come to some understanding as to what a parasite is, and what is meant by the term. I shall simply define it as a plant or animal which attaches itself to and lives in or upon another. We find them in the animal and vegetable kingdoms. These creatures are found to exist in almost every living being; and, not only so, but in all parts of their bodies, such as the viscera, muscles, brain, skin, and even eyes. Some appear to have no appreciable effect upon the organization in the subject, whose body they may occupy for years without giving rise to a suspicion of their existence, whilst others cause death in a short period. Again, in the vegetable world, almost every plant has its own special parasite in the form of either a vegetable or animal, and that to such an extent that sometimes whole fields of grain, tubers, or hops are nearly destroyed by them. It can hardly be supposed that these creatures are altogether created to be a pest to the world; it seems rather more probable that where they exist in due proportion they have a beneficial effect in cleansing and purifying those parts of the animal and vegetable bodies on which they feed, and that they only become specially injurious when they become extremely numerous, and suck away the very life blood of the creatures that sustain them. For of their numbers in special cases, such, for instance, as in what is sometimes called the cotton worm, or disease of sheep, where the whole mass of flesh becomes white like cotton with an infinite number of little threadlike worms—as in these and other cases, I say, their numbers are beyond all calculation. And, indeed, we may say of parasites in general, the law with them is to increase rapidly. Of animal parasites, we may say their varieties are incalculable, some being very conspicuous and large; while others, on the contrary, are so small, that it requires a powerful microscope to see them at all. It is true that nearly all animals, small and great, are more or less infested with parasitical companions, it naturally follows that they must be of all sizes—a truth which Dean Swift has occasionally, though humorously, expressed in his well-known lines:—

The little flea that does so fever,  
Have smaller fleas that bite 'em;  
And I these again have lesser fleas,  
And so on 'em 'em on.

#### Fluke in Sheep.

Let me draw your attention to the disease in sheep, caused by a parasite called a fluke or liver fluke. On wet lands there is perhaps no parasite from which the farmer suffers more than from the liver fluke. Dr. Caldwell says that the ravages of the disease have been of the most disastrous and extensive character. A writer in the *Edinburgh Veterinary Review* says, that in the season of 1831 and 1832 the estimated deaths of sheep from rot was between 1,000,000 and 2,000,000. Supposing the number to have been 1,500,000, this would represent a sum of something like £1,000,000 sterling. Scores of cases have occurred where farmers have lost from 300 to 800 sheep in a single season, in many cases causing their complete ruin. The number of flukes inhabiting a sheep's liver is sometimes very considerable. The eggs of a fluke may be numbered by thousands, as found in the bile contained in the liver ducts. Though of comparatively rare occurrence in the human subject, it is in an indirect manner extremely injurious to man. By its prevalence in the lower animals it cuts off a large supply of healthy food, at the same time producing a quantity of meat unfit for the market, but which, nevertheless, is largely eaten by our poorer inhabitants. The liver fluke is not only destructive by carrying off thousands of our sheep, but it also affects our larger cattle. The disease, therefore, is of great importance, as it cannot fail to prove highly prejudicial to our social interests. Outbreaks occurred in the year 1809, 1816, 1824, 1830, 1853, and 1860. A wet season seems to further the multiplication of parasites, and on the other hand a fine, dry, open season tends to check the growth and wanderings of the larvæ, thus rendering the flock comparatively secure. Long continued wet, and a succession of wet seasons, seems particularly favorable to this disease. Sheep feeding in salt-water marshes seem to be exempt. The mixing of salt with our sheep and cattle food serves as a preventive and curative agent. Moisture being essential to the growth and development of the fluke larvæ, sheep cannot be infested as long as they remain on high and dry grounds, and even in low pasture they can scarcely take the disease as long as they are folded

and fed on hay, turnips, and fodder, procured from drier situations. For rot-affected sheep my opinion is that the only way to treat them is by the free use of salt, transference of the rot-affected animals to dry ground, good shelter, supplying them with beans or peas, and the fodder constantly changed.

#### Ciddiness in Sheep and Cope in Fowls.

From this ravaging disorder in sheep caused by parasites, allow me to draw your attention to other disorders in domestic animals that have their origin in the presence of parasitical creatures. First, as to ciddiness in sheep. The disorder is caused by the presence of hydatids on the brain, and their presence there may be recognized by the restless and wandering habits of the sheep so affected. The parasites causing this disorder are supposed to be produced from eggs taken in the food, and afterwards reaching the brain through the channel of the blood. When they become large, or are numerous, they are the means of gradually absorbing the brain, thus causing very alarming symptoms. The disease is difficult to cure. Trepanning has been tried, and also passing a wire up the nostril, but probably it is the wisest thing to kill the animal. Allow me in passing to refer to a less important disorder of sclerostoma. The remedy adopted by some is to strip a feather and remove the worm by pushing the same down the throat. Some people apply turpentine externally. In the case of patridges being affected, change of food and place is recommended, with an infusion of rue and garlic, instead of plain water to drink.

#### Tape-worm in Cattle and Pigs.

I will now pass on to the subject of tape-worms. The human subject is affected by no less than ten distinct species. The tape-worm inhabiting fish exhibit very distinct characteristics from those of birds or animals, inasmuch as they are furnished with special hook appendages employed as supplementary organs of boring and anchorage. Though dogs and many of our domestic animals are often passing tape-worms, they do not seem to suffer severely from their doing so. It is only when the length of the parasite becomes very great, and requires a corresponding quantity of nourishment to support it, that it begins to sap the constitution of the animal in which it is lodged. Though looking like a worm of many yards in length, when more closely examined it is found to be a compound animal, resembling very much a chain, where every link is a distinct creature, but so united together as to look like one lengthened-out worm. Cestoid parasites are found in the ox, although to no great extent. The larvæ of tape-worms abound in cattle, while the cestoids in their adult condition are of less frequent occurrence. The beef measles, although unknown in England, is frequently found in India while serving out the meat rations to the troops. It is a larval parasite or tape-worm in an immature state, like that which infests the human body. Experiments have proved that the ox is equally as liable as the pig to certain tape-worm larvæ within the substance of their flesh. If a calf be induced to swallow ripe eggs of the human tape-worm, the ova there introduced will in time transform into measles. Swine will undergo a large amount of parasitism without apparently exhibiting so much suffering as other animals. Measly pork is more often detected than measly cattle, the reason being that in the latter the appearances are few and far between. The measles disorder (called cestoid tuberculosis with equal propriety) occurs in the sheep, pig, ox, or other animals. To discover this disease, a microscope, or at all events, a strong magnifying glass, is required. When properly developed the beef measles is  $\frac{1}{2}$  inch in diameter, this being much smaller than the cystercus of the pig. But there are other diagnostic signs of greater value. We may justly say that of all forms of animal life parasites are possibly the lowest. They are deficient of many of the organs that are possessed by those that are above them. Thus we say of internal worms, or entozoa in general, the organs of sense, &c., seem to be limited to that of feeling. In some the digestive organs are altogether wanting, the nutriment penetrating the tissue as in a fungus or conifer. No breathing apparatus is required, living, as they frequently live, in cells and cavities. These worms are produced by budding, spontaneous division, or by eggs. The embryo developed from the eggs does not always grow up immediately into an animal similar to its parent. It transforms itself into a larvæ, capable of giving birth without fecundation to other larvæ, which are alone capable of becoming animals similar to the parent worm. The larvæ are generally found in the tissue of animals very different from the one in which the perfect worm exists, so that before one of them can complete its development it must be transported into another animal's body. Thus the white cell or vesicle, causing a fearful disease in pigs, developing very rapidly in the muscular tissue, trans-

forms itself into tape-worm in the human intestines. One kind of worm, having five mouths, lives in the pulmonary cavities of the rattlesnake, another in the bladder of frogs, and another in the skin of a common worm; thus we have "A worm upon a worm." Among the parasitical creatures that are a great annoyance to our farm stock may be also noticed here flesh flies on sheep. They deposit their eggs on some damp place in the wool, which soon arrives at the maggot state, causing great inconvenience and loss. Ticks, too, are very troublesome to the flock, yet they tend to cleanse away impurities from the skin. And the maggots of the bot, residing in the frontal sinus, are also frightful enemies to the sheep. Causing them to sneeze has been known to bring the maggot from the nose. If sheep could be induced to become snuff-takers they would never suffer from the bot.

#### The Entozoa.

Think of our blood-vessels, and the blood vessels of other animals, being the channels through which insect parasites are flowing in countless numbers, like fish in great rivers and all their smaller branches.

The hematozoa, a blood parasite, infests the human blood, and this has been now proved by Dr. Lewis. It is 1-6th of an inch in length, and as broad as one of the red blood discs. Nothing as yet is known of its organs. As our knowledge of entozoa extends, we may find other at present obscure diseases associated with the presence of some such parasite as this. The discovery of its dwelling-place is of course the first step to its removal. Parasites, if not deriving nutriment from the animals on which they are found, must be a great annoyance, and must certainly retard the flight of birds and insects. We owe a debt of gratitude to a large and important class of flies of the ichneumon family, that are true parasites, and that live on other insects, enemies both in the ovum, worm, and chrysalis state. Parasites, as a rule, begin life in the egg form, passing from that into the larvæ or caterpillar state, and then into the third or proper state; but sometimes this arrangement is somewhat altered, and as a French naturalist named Faber has noticed, some insects have to pass through what may be termed intermediate states; that is to say, not only eggs, larvæ, and pupa, but modifications of their status; this he terms hypometamorphosis (this is the case with the bee parasites—the oil beetle). Bees are afflicted with a parasitical worm inducing disease. These creatures feed on the fatty tissue, pass through their usual change, and then exchange their living quarters for the water, where they lay millions of eggs, which are again ready to be taken up by any animal frequenting the moist localities in which they are found. And, while speaking of bees, there is a microscopic fungus called *mucor melitophorus* that infests bees, filling the stomach with an immense number of microscopic spores, that greatly weaken the insect. The tachina, an insect that causes immense damage to bees, is the means of a disease called the foul brood, analogous to typhus fever in the human subject. It lays its eggs in the larvæ of the bee, and the perfect insect soon comes to maturity; the young bee is killed, and its decaying body causes a poison similar to typhus fever to rise in its immediate neighborhood or brood. There are two facts that I had almost forgotten to mention; the first is that dogs, when troubled with a certain kind of fleas, by biting and gribbling at them, the fleas find their way into the stomach, from hence the embryos are set forth by the gastric juice, giving rise to parasitical worms. Secondly, Dr. Cobbold mentions the curious fact that he calculates that about 4000 people are affected with tape-worm in the metropolis; and supposing that each day one of the two segments of the living worm pass into the sewers, causing 40,000 eggs, the sewerage is then placed over the land, and these eggs may be swallowed by cattle, the covering of the eggs preserving them from atmospheric influences. As the creatures of the parasitical animal are so numerous, I might have drawn your attention to more than I have done; but as there is still a further branch of our subject untouched—namely, vegetable parasites, I must hurry on to that, concluding my remarks on animal parasites with some brief information regarding their development. The science of helminthology, makes us acquainted with the forms, habits, structure, development, distribution, and classifications of a large number of invertebrate organisms which take up their abode at one or more periods of their life-time in or on bodies of man or other animals. Dr. Cobbold says that the happiest, and perhaps after all the most truly philosophic way of studying the entozoa is to regard them as a particular fauna, destined to occupy an equally particular territory—that territory is the wide-spread domain of the interior of the bodies of man and other animals. Each animal or host may be regarded as a continent, and each part or vicus of his body may be noted as a district. Each

district has its special attractions for particular parasitic forms; yet, at the same time, neither the district nor the continent are suitable localities as a permanent resting-place for the invader. None of the internal parasites continue in one state; all have a tendency to roam; migration is the soul of their prosperity, change of residence the *sine qua non* of their existence; whilst a blockade in the interior, prolonged beyond the proper period, terminates only in crutification and death.—*Country Gentlemen's Magazine*.

#### Lampass.

Lampass is a term used to signify a state of tumefaction, existing in the palate about that part known as the "bars," situated in the vicinity of the upper nippers. It was formerly thought proper to burn the bars with a hot iron in order to cure the malady, and is yet practised to some extent; but happily this mode of cure is almost discarded. Some men, if their horses do not eat, at once examine the mouth to see if the "lampass is down," and if it be a young horse, the bars are found unusually prominent, which the owner or groom at once pronounces lampass, which must be burnt out before the horse will eat his food.

If a horse rubs his tail many men think he has lampass, and recommend burning as a cure. This burning process is not only barbarous and injurious, but *dangerous*, because when the hot iron touches the bars of the mouth the horse will often close his teeth down upon it, and a horrible wound is inflicted, which is harder to cure than the disease treated. Therefore, *never burn* for lampass. If a horse rubs his tail, examine it to see if dirt has not accumulated thereon, or if there are not pimples or little sores that causes the animal to rub. If neither are discovered, then look for pin worms, which is a source of irritation, causing the horse to rub. These things should be looked to, and treated accordingly, before torturing the animal for an imaginary disease. Lampass is a fullness of the vessels of the palate, consequent upon that inflammatory condition of the gums which now and then attend the teething process; but for all this the horse is still occasionally persecuted for it, even by some professional men, as well as farriers. The practice is a disgrace to the professors of veterinary science, and should not be tolerated.

So long as men can be found to perform this wonderful (?) operation, so long will the barbarism continue.

If a horse is affected with lampass—which is very rarely the case—prick the inflamed gum with a knife, or use a wash of alum water, and give soft food, and in a few days the horse will be well.

*Symptoms*—The gums are hot, tender and swollen, which can be discovered by pressing upon them, when the horse will show signs of pain. If the gums are not found in this condition the horse has not lampass.—*Farmers' Union*.

#### Remedies for Foot-rot and Scab.

In a recent report of the Department of Agriculture, a Virginia correspondent has the following remedies for foot-rot and scab:

*For foot-rot*—First cleanse the foot, then pare away the portions of the hoof covering the diseased part, and apply the following to all the flesh affected by fungus growth. Mix gunpowder and blue vitriol in equal quantities, and to seven parts of this mixture add one part of verdigris and sufficient sweet oil to make a salve. Apply this salve twice a week, keeping the sheep dry-footed for an hour or so after each application.

*For scab*—Make a strong lye from hardwood ashes, as oak or hickory; add to each gallon of lye one pound of strong tobacco, simmer over a moderate fire for about an hour, then strain and add to each gallon of the liquid a quarter of a pound of the flower of bluestone, the same quantity of hellebore powder, a half pint of the spirits of turpentine, and a large tablespoonful of carbolic acid. The mixture is then fit for use as a "dip," (for which the best time is after shearing,) or otherwise. It should be well stirred before using and kept from the eyes and mouth. It is well, before applying, to scratch the affected parts with a curry comb, or something similar. If the weather is wet the sheep should be kept under cover for a short time after the application. The remedy should be applied once or twice a week.

A little boy and girl had been cautioned never to take the nest egg when they gathered the eggs; but one evening the girl reached the nest first, seized on the egg, and started for the house. Her disappointed brother followed, crying, "Mother! mother! Susy—she's been and got the egg the old hen measures by!"

## Poultry Yard.

### Poultry Notes, No. 6.

#### Eggs—Packing and Preserving.

It is not necessary to demonstrate a truth well known and understood by physiologists, that all real animal life is developed from the egg form, it is only necessary to state that the essential difference is in the mode of development; in some cases it is carried on entirely within the body of the animal, and immediately after fecundation has taken place, in others the process of development takes place after separation, and then only by the adoption of natural process. In the latter case the embryo is encased in some hard substance or shell, which preserves it, until its functional properties are brought into existence, by the process of incubation, as in the case of fowls. The ovary of the hen which contains the embryo eggs somewhat resembles a cluster of fruit in shape, and is to be found on the left of the spine, in this ovary the essential part of the egg is formed, and which is again contained within a thin and transparent oviac. It is not until after the yolk has become fully matured that fecundation takes place, after which it is clothed with a shell in its passage through the oviduct before being conducted into the outer world. Having now secured the egg, it will be the business of the breeder, especially at this season of the year, to see that it is not left too long in the nest and be chilled, in which case it will be useless for hatching purposes; all eggs should be gathered regularly, and as soon after being laid as possible. Each egg should be numbered and dated so that no mistake may be made in the chickens afterwards, and every egg laid by a hen of recognised value should be carefully recognised, so that the breeder may be able, if necessary, on a mere examination of the eggs, to distinguish those laid by any particular hen; and with very little practice this can readily be done, as scarcely any two hens lay eggs in all respects precisely similar; something in the shape or complexion of the shell will at once lead to a distinguishing difference, and often do good service to the breeder where it is an object to set only the eggs of one particular hen in a pen of several fowls. This will be a good time too to commence observations on the laying qualities of hens, and of making experiments of the duration of the cock's influence, and in other matters suggested in former papers. If it is desired to institute a good breed of layers, the eggs of each bird should be carefully marked and placed to her credit. By this means the number of eggs laid by each hen before incubation commences will be known; those laying the larger number may be hatched and a note of the produce made. No breeder should omit keeping a regular poultry diary, in which each occurrence that may come under his notice should be noted down, even to small matters, which, in themselves, may at the time appear quite unimportant. It is by such close observation that the breeder comes to know many interesting incidents regarding his breeding stock, which without the help of a diary might be lost to himself and the public. The best breeding birds are not always the best layers, but by careful selection only of the eggs of the most productive hens, and hatching them, and again next season pursuing a similar course, it is surprising what results may eventually be arrived at, combining good laying qualities with good breeding properties. After being collected, the eggs should be carefully stored away. If the weather is very cold they should be carefully packed in bran, large end downwards; the bran will keep the frost out, and the vessels in which they are packed may be placed in a cool place, so that no danger of injury to the eggs may occur. Keeping eggs with the large end downwards is contrary to the method hitherto almost universally pursued by all breeders, and we are indebted to Mr.



Wright in first directing attention to this subject some years ago, and who in his turn was indebted to an intelligent lady who advocated this plan, first from a theoretical point of view, and subsequently from a practical one. She alleged as the probable reason of its superiority that "keeping eggs on the small end appears to me to cause the air bubble to spread, detaching it from the shell, or rather from its membranous lining, and after being so kept for a fortnight, the air bubble will be found to be much more spread, and the egg to have lost much vitality, though still very good for eating." So much for her theory, because her allusion to the loss of vitality can only be theoretical taken from the stand point in which she views it. But coming to the practical part, she goes on to describe her success with keeping eggs in the contrary position, or large end downwards. "Owing," she says, "to this method of storing (large end downwards), such a thing as a stale egg has never been known in my house, and as regards success in hatching, for several seasons when I was able to attend to my poultry myself, of many broods set, every egg produced a chicken." "Such is the testimony of this intelligent lady," says Mr. Wright, and to which he adds in his Book of Poultry—"We were by no means hasty in adopting this plan; but after careful observation and comparison for two seasons, have proved indisputably that both for eating or setting, eggs do keep much better, the large end being placed downwards. There is, after a week, a marked difference in eggs kept in the two positions as regards the spreading of the air bubble, which is well known to affect both the freshness for eating and vitality for setting of stored eggs, and after three weeks the difference can be discerned even by the taste alone." It will of course matter little which mode is adopted provided the eggs are used for either purpose within a short time, but the longer they are kept the more the difference from the two positions increases: and while eggs stored with the small end down cannot be depended upon after a fortnight to produce more than a proportion of chickens, those kept in the way we now advocate will keep perfectly good for hatching, a month or even more." Packing eggs in boxes for hatching, to be sent to a distance will also engage the breeder's attention at this season. Various methods have been recommended by different writers. One way we have found very simple and very safe, and can therefore recommend its adoption. Procure a box of a size sufficient to hold with ease the number of eggs intended to be sent away; have the lid so made that it will slide into a groove on the top of the box, fill in the bottom with a little bran an inch in depth, upon which place a sheet of strong paper cut to fit in without trouble, fold up each egg in a piece of paper, and set it on the sheet of paper already placed in the box; fill in the spaces between the eggs with more bran, taking care that none of the eggs are allowed to touch each other; over this place another sheet of paper, and if necessary, another layer of eggs as before. After the eggs are all in, fill up the vacant space with more bran, and then slide the lid through the groove into its proper place. Care must be taken to have the box properly filled with bran. Then put a screw through the outside end of the lid into the box, and your box of eggs may safely be sent on its journey. We have sent many dozens of eggs in this way, and never knew them to fail, even when forwarded by stage over rough roads in the spring a distance of thirty or forty miles. Other methods of transporting, packing and hatching have been strongly advocated by breeders, such as boxes with spring cushions at bottom, and separate compartments for each egg made in the transport box; but for simplicity and general safety, the one we have described will be found equal to any we have seen. Preserving eggs for domestic uses should also at this season engage attention; in this respect several experiments have been made and the results published, which are worth noting. It has been found that continued immersion

in lime water gives the egg a peculiar taste; not agreeable; salt water penetrates the egg; ashes, bran, and saw-dust do not preserve it; varnishing has been practised and abandoned on account of the odor and taste which it communicates. The following experiments with pure oil will show their value:—Ten eggs were rubbed with the finger dipped with flax-seed oil, the eggs only just lightly covered with the oil, which dried in a few days; ten other eggs were oiled in the same way with the oil of the French poppy. To ascertain the comparative effect of the two oils, ten eggs were not oiled and received no preparation; the thirty eggs were placed side by side, but not in contact, in a vessel, the bottom of which was covered with sand, enough to keep them standing upright, three-fourths of each egg being exposed; they remained thus for six months, they were weighed when first put into the tub, and weighed in six months after;—First, the eggs not prepared lost 18 per cent. of their primitive weight, were half empty and exhaled an odor of corruption; the eggs rubbed with the oil of poppy lost 4 per cent., were full and without odor or bad taste; the eggs rubbed with flax-seed oil lost three per cent. of their primitive weight when they were full, and had the odor and taste of eggs perfectly fresh. Hence flax-seed oil may be deemed preferable for preserving eggs. Another very good preparation for preserving eggs is as follows. To four gallons of boiling water, add half a peck of new lime, stirring it some little time; when cold, remove any hard lumps by a coarse sieve, add ten ounces of salt, and three ounces of cream of tartar, and mix the whole thoroughly. The mixture is then to be let stand to temper for a fortnight before use. The eggs are packed as closely as possible, and to be kept closely covered up. Thus treated, if put in when new laid, at nine months after they will eat quite as good as though laid only six days.

### Poultry Notes No. 7.

#### Hatching Eggs.

The selection of hatching eggs, and the treatment of the hatching hen will now claim attention. Eggs selected for this purpose should be of the average size, neither too large nor too small; they should be smooth shelled, not unusually long, nor in general appearance varying from the shape of the eggs usually laid by the hen. Some people affirm that by a careful selection of peculiarly shaped eggs, cockerels and pullets may be produced at will, but there is really no truth in the statement. Mr. Wright, in discussing this subject, states in his Book of Poultry, that "careful experiment and inquiry have satisfied us of the following facts. 1st. As a rule, the eggs of a pullet are longer in proportion and more pointed at the end than those of the same bird next year, or even later in the same season. 2nd. On an average, her early eggs produce cocks in about the proportion of six to four. (There will be numerous and startling exceptions both to this and the other rules: we are speaking of averages.) 3rd. The eggs laid by hens early in the season are also, as a rule, perceptibly longer and more pointed than those laid later; and, 4th. It is well known that cocks predominate on the average in early broods, but pullets in the later." It is well known however that the fewer the hens with a cock, and the more vigorous he is, the more cockerels may be expected, and the knowledge of this is of great assistance to the breeders of prize poultry, who wish their cockerels hatched first, on account of their slower feathering and later arriving at maturity than pullets. The eggs laid by, say, three hens mated with a strong young cock, are likely to produce more cockerels than pullets, as would also the first eggs laid of a batch, but there always will be exceptions to these or any other rules. Breeders of prize poultry should not lose sight of the early production of cockerels; it is of great advantage to them to have

cockerels well matured at the show season in the fall, while pullets should not be too forward, but we will enter more fully into this subject in another paper. The difference in the mode of treatment as between the fancier who raises for exhibition purposes, and the farmer who requires early maturity in pullets as well as cockerels, will be quite perceptible.

At this season of the year, only a moderate number of eggs, say seven, or at most nine, should be placed under a hen; setting too many often is the cause of losing all, the hen not being well able to cover them, each in its turn gets chilled, and the vitality destroyed; besides one has to consider the chickens; if there are too many in a brood, some will not get brooded under the hen as they ought, and will in consequence droop and die. In summer this is of course different, and we have known as many as fifteen eggs hatched successfully, and all the chickens raised, yet it is not well to put so many at any season of the year. The size of the nest will of course depend on the size of the bird a nest for the larger breeds should be fourteen or fifteen inches square, for smaller breeds in proportion. Care should be taken that the nest be placed in a warm place and that the hen is not allowed to remain off too long at a time; twenty minutes at this season of the year may be quite sufficient to destroy all vitality. A good plan is to place the nest box on a shovel of dry ashes, placing the straw for the nest on it. It not unfrequently happens that an egg may be broken the first or second day after setting; in such a case all the eggs should be lifted out of the nest and placed in a bucket of water heated to about 105 degrees, the nest then well cleaned out and fresh straw placed in it, all the eggs any way soiled by the one broken properly cleaned with a sponge or soft cloth and replaced in the nest, placing the hen on them again as in the first instance. The cleaning of the soiled eggs is an important consideration, for if left with the portions of the broken egg still clinging to them, it frequently destroys their vitality. The fresh air, so necessary to the embryo chick, cannot penetrate the shell, and death or immature hatching is the general result. If the hen's breast be much soiled it also ought to be washed clean, or next time she comes off it will probably adhere to one or more of the eggs and repeat the accident. We have found it a good plan not to give the eggs to the hen for twenty-four hours after she is placed on the nest, and this answers a double purpose; first, it allows the hen to prepare the nest to the proper shape, and secondly, it proves her desire to sit steadily. The best hen we think for early broods is a Cochin or Brahma; the warm fluff with which these birds are so well supplied is a great assistance in brooding the young chicks, although later in the season rather smaller hens would make the best sitters. Game hens are excellent sitters, and it is held by many breeders that the warmth of their body is greater than that of any other breed, and will hatch out the chickens quicker. They are also excellent mothers, protecting their young from all assailants. But the tame gentle disposition of the Cochin and Brahma so pre-eminently fit them for the position of mothers, besides, as already mentioned, their ample feathering, that with all that can be said in favor of other breeds as sitters, we unhesitatingly give them the preference. In the early part of the season it is difficult to procure sitting hens, and we have often had to purchase them at some distance from home, and yet succeeded in making them hatch satisfactorily. The course we pursued was this; the purchased hatcher we always removed from her own nest immediately after, if possible placed her in a bag and carried her off to her new abode, already prepared for her. Placed in her new nest, we had her carefully covered over for at least twenty-four hours after, until she showed unmistakable signs of satisfaction with her new nest. During this time she was supplied with false eggs. We then supplied the regular setting eggs, and by degrees allowed her a little light, and finally uncovered her altogether. In almost every

case we have found this a successful course to pursue, although on a few occasions we failed.

A very important consideration in hatching eggs, is not to allow the time of hens to be lost in sitting on sterile eggs. At the end of six or eight days, all the eggs should be examined and the unfertile ones discarded. Two hens should if possible be set at the same time, and if the sterile eggs are numerous, those found on examination to contain chickens, may be transferred all to the nest of one hen, and fresh eggs supplied to the other; in this way much valuable time is saved. Various methods of ascertaining sterile eggs have been published, each writer advocating his own invention as best; a very simple way, and one that can be adopted at any moment, is that of enclosing the egg between the thumb and fore-finger, and turning the rest of the hand so as to shade the light as much as possible, a good idea will be formed at the end of the eighth day of its probability of containing a chick; this of course requires practice and a knowledge of the appearance which all fresh eggs present to the eye. A new laid egg will always, when placed in the position described, appear clear and translucent, so also will sterile eggs even after a week's hatching, but eggs which contain embryo chicks, have a dark shadow in the centre, shading off to mere transparency at the edges; by degrees the dark shadow in the centre increases, and about the ninth day, or sometimes the tenth, the egg will be perfectly opaque. By means of a well constructed egg-tester, the barren eggs may be detected even as soon as thirty-six hours after sitting, and no breeder should be without one. Another simple method sometimes used, in the absence of a proper egg-tester, is a plate of tin or zinc, to shade the light, and holding the egg to an aperture in it, cut to the shape of the egg, the light may be brought closer, and the difference between sterile and fertile eggs known at the fourth day.

The number of days required to hatch the eggs of poultry is twenty-one, but this time may be considerably increased in cold weather, or by an inattentive sitter. Something too depends on the state of the eggs when set; stale eggs will require longer time to hatch than fresh eggs; Hamburgs not unfrequently hatch out on the twentieth day. Turkey eggs require from twenty-six to twenty-nine days; Guinea fowl, twenty-five to twenty-six, and Sea-fowl twenty-eight to thirty days. Pheasants hatch on the twenty-fourth or twenty-fifth day; and Partridges the same. Ducks hatch on the twenty-eighth, and geese on the thirtieth day. In warm weather, and if the hen be a close sitter, a day or two in some cases may be gained on this time. We have had hens that would never leave the nest until removed, and even then scarcely take sufficient time to eat enough to satisfy nature, but we have not found such very close sitting produce chickens any quicker than did the hen which took a reasonable time off the eggs once in every twenty-four hours.

**BREAKING UP A SETTING HEN**—A friend of ours told us, the other day, how his wife cures hens of setting; and as it is a very novel way, we will repeat it for the benefit of others who are bothered with inveterate old setters. Picking up some splinters from the chip-yard (some four or five inches long) she bound them firmly to the hen's legs, leaving only the hip joints in working order. Bidde was outwitted; like the old Dutchman's hen, she would have to set standing up.—*A Rural Reader.*

**A GREAT YIELD OF EGGS.**—I have a flock of 24 hens, a cross mostly of White Leghorn and the Light Brahma. They have laid fairly during the past winter, but in three days of the last week of February, they laid respectively 15, 20, and 21 eggs. Can any one tell me of so large a yield of eggs this cross thus far. The produce is hardy, of good size, and fuller in the breast than the pure Brahmas, and almost as broad on the back and in the rump. The legs are nearly free from feathers, which is a great improvement to my eye, and they are not such inveterate setters as I find the Brahmas. In fact, some do not want to sit at all, and others that do can be broken up in three or four days, instead of as many weeks as it has often taken me with pure Brahmas, and I have tried every method for this purpose I ever heard of. This cross-breed of hens has proved superior to my Houdans in laying the past winter. A. B. ALLEN, in *Country Gentleman.*

## The Apiary.

### Clipping the Wings of Queens.

For some years past it has been customary with the best apiarians to clip the wings of queen bees as a precaution against swarming.

At the annual meeting of the North American Bee-keeper's Society, held at Louisville, Ky., in December last, doubts as to the propriety of this course were raised by Gen. D. L. Adair, one of the best apiculturists, both as to theory and practice, on the continent. In a paper on the wings of the bee, it was contended that various important functions, breathing included, were performed by these organs, and it was argued that they could not be mutilated without injury.

At the annual meeting of the North Eastern B. K. Association, which met in Utica, N. Y., during the first week in February, this subject was very fully discussed, and a number of the most experienced bee-keepers gave it as their decided opinion, that clipping a queen's wings does not injure her capacity for usefulness. Secretary Nellis had practised clipping five or six years, and observed no bad results. At the present time, he had more than forty queens with wings cut off, and considered them as serviceable as others. Captain Hetherington, we believe the largest bee-keeper on this continent, also practised clipping. He sometimes had three and four hundred clipped at once. Mr. Doolittle had done more than all the rest, for he had tested the capacity of a queen who not only had her wings but also a hind leg clipped off, and yet did effective duty for four years. The general weight of testimony was decidedly in favour of clipping. Mr. Quinby, however, who proposed the question for discussion, was very reticent in regard to it, expressing no definite opinion, but merely testifying that he had known a case in which a swarm went out with a young queen, leaving the clipped queen in the hive. Other speakers incidentally admitted that clipped queens were apt to be superseded, the bees evidently regarding them as deformed or crippled.

We have never tried this practice, and are therefore liable to be considered incompetent to say anything against it. But we can at least be permitted to state why we have never tried it. One reason has been, that we object, on principle, to the unnecessary mutilation of the creatures domesticated by man. Docking horses' tails, clipping terriers' ears, ringing pigs' noses, picking the feathers off live geese, cutting off the combs of game cocks, and the like, are all of a piece with clipping the wings of queen bees. Another reason for our avoidance of the practice has been, that we are unable to see how it can be kept up without injury. If it is a wise and necessary thing to do, then it must be done to successive generations of queen bees. Now, though no serious evil may result from its being done once in a while, it must entail weakness if done continually. A woman, here and there, may, by accident, lose an arm without perceptible detriment to the race; but if every bride were deprived of an arm on or before her marriage, we are of opinion that the mutilation would tell disastrously upon coming generations of human beings. If General Adair should prove to be right, and the important functions he suggests are in reality performed by the queen's wings, then assuredly serious injuries must result from the mutilation.

Moreover, we are opposed to all unnecessary meddling and fussing with bees. There is a wise management and supervision of the busy little workers, which is man's part in the production of honey, but beyond this, it is impertinent interference and annoyance to disturb their wise economics. The swarming instinct may be checked, regulated, and watched over, but we do not believe it can ever be annihilated, or if it can be, it will be at the cost of such a change

in the disposition of the bee, as will greatly lessen its value to man as a gatherer and storer of honey.

Finally, we believe the All-wise Creator made no mistake in giving the queen-bee wings, and that it is, on the whole, best she should be permitted to retain them. One of the speakers at Utica said he began the clipping business by clipping off one of the four wings. Then the queen went with the swarm. So he took to clipping off "every wing entirely." Another said, "Queens cannot do anything with their wings but go through the air. Their business is in the hive; wings are of no use there." It is astonishing to see with what cool presumption some people constitute themselves advisers extraordinary to Infinite Wisdom, and proceed to carry out improvements in the Creator's plans. The queen-bee had wings when the Lord God surveyed his finished works, and pronounced them good. An inspection of them now would not result in the denial of wings to the royal insect, or in any other improvement whatsoever, seeing that all the Divine works are, like their glorious Maker, perfect. The Creator's fiat is of more weight by far than the creature's fancy, and we are content, in our bee-keeping management, to conform to all the Divinely-established laws of bee-life, instead of trying to change, or even presuming to suspend them.

### Why don't Farmers keep Bees?

Mr. Quinby, of St. Johnsville, N. Y., a high authority on everything pertaining to bee-keeping, discusses the above question in a paper read before the North Eastern Bee-keeper's Association at its recent annual meeting. He assigns four reasons for the neglect of bee-keeping on the part of farmers. 1st, They don't know how. 2nd, They doubt if it will pay. 3rd, They have had such poor success in wintering bees. 4th, They are afraid of being stung.

To these reasons, quite sufficient in themselves to account for the fact that very few farmers keep bees, we would add another—namely, want of enterprise. There is a quality for which successful men of business are noted which is very scarce among farmers, and which we call "enterprise." It leads to trial of new and improved methods; to the making of ventures here and there on the principle, "Nothing venture, nothing win," to an intelligent scrutiny of things generally; and to energetic action in any direction that seems to promise adequate reward for diligent effort.

From some cause or other, this quality is lacking in the great majority of farmers. Were it not so, there would be more manuring and better tillage of land; fewer bars and more gates; some display about rural homes; a general adoption of improved stock; carefully kept farm accounts; and many other things that are as rarely found around country homesteads as hives of bees.

Enterprise is the result of education, and of that sharpening of wits which comes with the association of minds and the friction of ideas in the social and business contacts of life. Agricultural colleges for farmers' sons, and for any who contemplate rural industry; the circulation of agricultural periodicals and books; more visiting and travel on the part of farmers and their families; the establishment and energetic working of farmers' clubs; and such like means, will tend to cure an evil whose presence is indicated all around us in bad farming, woe-begone looking homes, tumble-down fences, ill-bred stock, absence of gardens, and last, but not least, neglect of bee-keeping.

**A PLANT DESTRUCTIVE TO BEES.**—The large-podded milk weed, almost invariably causes the death of every bee alighting upon it. The bee either adheres to the plant or else bears away a small scale sticking to its feet, and cripples itself fatally in attempting to remove the annoyance.—*Agricultural Report.*

### Bee-Keeping.

Bee-keeping is honest, honorable and easy. It needs but little capital and no unusual skill; neither great strength nor profound learning. It does not depend on political favor or the smiles of the rich. Rural, but not rude; roval, but not rigorous—it asks but the smiles of nature and a quiet spot. *It makes by saving, and does not injure by taking.* It requires many operatives, but they board and clothe themselves, requiring of their employer only a cheap, suitable place to store the product of their skill and industry, ready for his or her use, or for market. It can be done almost anywhere, and more money made from the same amount of capital and labor than in any other business.

Many a farmer loses more than he makes by not keeping bees, or not keeping them properly. He and his family grow prematurely old with ploughing and reaping, mowing and hoeing, and all the drudging incident to tilling, while every flower is saying to them, "Send us bees, and we'll relieve you from wasting toil." These sable servants challenge competition in converting the sweet treasures of nature to their master's use. Spare them life—it is short at best. Let inventive genius protect and aid them—they will appreciate favors. We cannot afford to do without bees, much less to keep them in a profitless manner. The profits of bee-keeping may, no doubt, be doubled; and who shall provide a feasible way to do it will deserve a niche with him who makes two blades of grass grow where one grew before. To such attainment or niche, Mr. Editor, I shall strive, and hope to aid you, as well as to merit one of those prizes you propose to award to certain of us "boys and girls."—I mean that "Microscope."—MAST. FRED ROBINSON, in *Bee Journal*.

"HE MAY be regarded as a master in bee-culture who knows how to winter his stock in a healthy condition, with the least loss of bees, the smallest consumption of stores, and with the combs unsoiled."—*E.*

## Implements of Husbandry.

### The Cultivator or Horse Hoe.

When land has been in use for a length of time, its surface under ordinary circumstances must become weak so to speak, i. e., the workable portion of the soil, viz., from ten to twelve inches from the surface, becomes exhausted, and must of necessity be mixed with a portion of the natural soil beneath.

Thorough manuring will undoubtedly aid in preventing this result; but even with manure, experience has shown that the occasional mixing up of the under or sub-soil with that at the surface is indispensably necessary to the continuance of good crops. The soil, in order to adapt it for flourishing growth, must be rendered easily accessible to air, moisture, and solar warmth. Let these facts never for a moment be lost sight of, and then we can always understand intelligently the use of our various implements.

In ploughing, the first general disturbance takes place; next in dragging or harrowing; the next in "chaining," and so on, all with the same object in view, viz., pulverization for the expansion of roots and for the absorption of moisture and heat.

Ploughing seldom dips down over a foot into the soil. In the course of several seasons, then, this foot of surface as we have said would be largely deprived of its inherent energies. The large cultivator then comes to be one of the most useful of all implements—its object being to dip down several inches below the exhausted covering, ruffle up fresh earth below, and throw it to the surface to strengthen and enhance its weakened neighbor. Those in use here are of great variety, and range from the simple horse hoe for drill purposes to the large two, three, and even six-horse cultivator.

The smaller ones, and several also of the two-horse implements, are used for loosening the soil about root crops and for cleaning out the weeds between drills.

One of the latest improvements in them is the introduction of rectangular teeth—that is, teeth in the

shape of a carpenter's square—which not only dip into the soil and thus shake it up, but also scuff along through it near the surface, effectually cutting or uprooting everything in the shape of weeds that come in their way. Another great improvement which renders the implement serviceable in several various distances between drills, is the adjustable nature of its tooth bearers. These can be separated, or brought closer together to suit the operator.

Of the larger cultivators, we have to go to England and Scotland for the more elaborate articles. Howard's Scarifier, made in Bedford, England, is noted the world over. It is made wholly of wrought iron; the tines can be placed nearer or farther from each other according to the state of the land, and are so formed that they do not cut or break the "couch" into short lengths, but draw it from the soil and deliver it on the surface. The implement weighs, according to size, from 3½ to 5 and 8 cwt. The tines also are reversible, so that the soil may be thrown to or taken away from the drill. The teeth, likewise, are of various shapes, viz., straight, hooked slightly, and clawed.

Another splendid horse hoe introduced into this country is on the principle of "Garret's Horse Hoe." In it, which is a large implement, the length of axle is altered to suit all kinds of planting. By this means each hoe is kept quite independent of the others so as to suit all inequalities of the ground, and they can be set at any width from seven inches to thirty.

Another peculiarity of the Garret Machine is that its tines run along at an oblique angle, the obliquity being altered to any required degree. By one handle the tines are regulated momentarily; by the other the whole machine guidance is under complete control.

Two-horse cultivators used in this country are generally understood to be those that run on two wheels, the depth of dip being regulated by raising or lowering the frame-work. They have been much used for pulverizing the surface of inverted sod and fitting it for the reception of seed, but they are likely to be superseded in this respect by Share's Harrow. Modified so as to pass the two spaces between three rows of corn, they are known as Double Cultivators, and have now come into use for cultivating large fields, for which purpose they are generally employed in the Western States. They are of two kinds—sulky cultivators, furnished with a seat on which the driver sits, and the "Walking" ones, without seat—the driver following on foot behind. The former will accomplish more work in a day, with less fatigue to the driver; the latter are better suited to rough, sliding ground, and are cheaper.

There is another machine quite familiar to the "Western States" farmers, but not so generally known yet in Canada, which forks up the soil by means of a series of revolving teeth. It is known as Comstocks' "Rotary Spader." It is drawn by two or four horses according to its size and the strength of the animals, the driver riding on his seat. Sometimes two machines are attached together and both driven by one man. It is used only on land free from sod, such as corn or other stubble, and is not adapted to land containing stones.

The advantages claimed for the spader are as follows: greater ease of draught, when compared with the plough, the chief source of friction being the thrusting of the teeth into the soil, while the friction of the plough at the mould-board is usually equal to at least half the weight of the moving sod, added to the entire weight of both plough and sod, on the sole in the bottom of the furrow, while more force is required to cut with the edge of the share than with the points of the rotary spader. Hence it is found to do twice or three times as much work with the same team as a plough. It does not form a hard crust in the bottom of the furrow like the plough, and it leaves friable soils ready pulverized for plant-

ing without the use of the harrow. There are, however, some serious drawbacks to its introduction. In the first place it costs about ten times as much as a good steel plough, whilst its complexity renders it liable to breakage except in uniform and stoneless soils; in wet weather also it will not work, nor in any case unless the soil is free from grass.

### Land-Rollers.

The following remarks we take from a letter of "Rural" in the *Chicago Tribune*:

Manufacturers of farm-implements are continually seeking new things; that is all right, and yet they should not pass by those that are old, simply from their age. We are led to this remark more particularly by efforts to produce something new in the way of a land-roller,—something on which to hang a patent, or something new that shall attract attention. These men forget that farmers are becoming rather practical; they meet so often, in these days of Granges and Farmers' Clubs, that they are quite liable to talk over all the new ideas sent forth in circulars or advertised in the industrial journals. These men may, therefore, expect the new thing will be looked at somewhat critically.

The average farmer may be supposed to look back at least twenty years. At that date, the wooden land-roller was used to a limited extent. This was an oak log some 8 to 10 feet long and 20 to 24 inches in diameter, and was a rather primitive mode of rolling the rough clods; yet its use gave promise of value, and something better was sought for, and some New England genius sent out a cast iron roller, cast in three hollow sections; but, unfortunately, he attached the power in such a manner as to destroy its value. It was about 6 feet long and 30 inches in diameter. I have seen nothing that would compare with it as a horse-killer. I persuaded a neighbor to take off the old frame, and attach one direct to the line of the draught; when it became a useful implement, not requiring half the power to haul it.

This effort discouraged iron-rollers, and the next effort was for a large hollow roller, made of narrow sections of oak plank, bound together with iron hoops; and many of these are now in use.

In 1860, a man by the name of Isaac P. Atwater advertised "a cast iron land-roller, 24 inches in diameter, in 13-inch sections; six sections, \$45; seven sections, \$50; eight sections, \$55; all hung ready for use." I ordered one of these, of six sections, and have had it in use every season since; and it has rolled hundreds of acres for others. This roller may be drawn by a light team, is easily turned at the ends of the land, and does the best kind of work; and I would not exchange it for any two iron land-rollers I have seen, and especially for one of those new patent kind, of which the patent is more curious than useful. Mr. Atwater found little sale for his rollers, and, the war following, the business failed, and he found a grave on some distant field; but he has left behind him the best plan of a cast iron land-roller that has ever been put in the field.

The rows of corn are usually planted 3 feet and 10 inches, and the roller should be just long enough to cover two rows; consequently 7 feet 8 inches long, or rather 8 feet; [and these should be in seven sections of 13 inches; and as there is a half-inch play between each section, it would be the proper length. I think the roller with the frame weighs about 800 pounds.

Some enterprising manufacturer ought to get up a good practical roller like this, even without a patent; but I should not be surprised to hear of some enterprising genius taking out a patent for it, as it would be an easy thing to invent, like the sliding gate. A little judicious swearing would accomplish it. It would be better to load it with a sham patent than not have the roller put on sale at a reasonable price. Our implement manufacturers think they must have their goods protected with a patent in order to secure a monopoly, and some of them have a very slight show of novelty. At our State Fairs, year after year, we are shown new patent rollers, some of wood and some of cast-iron, but none of them to meet the demand.

A roller need not be very heavy, nor exceed 22 inches in diameter; and it is a question if one of 20 inches is not quite as good, as a small roller will grind the clods, while a very large one simply presses them into the yielding soil. A neighbor has a roller cast in three sections, that is, only 16 inches in diameter, that does good work, and gives satisfaction.

A good cast-iron roller ought to be had for \$40 or \$50 at the shop, and at those prices could be sold.

## Poetry.

## Old Farmer John.

Old Farmer John is more perplexed—  
Nay, Farmer John is sorely vexed;  
He labors early, labors late,  
Yet ever finds an adverse fate.  
For all his toiling scarce suffice  
Of needed clothes to pay the price.

The summers come, the summers go,  
The spring showers waste the winter's snow—  
The while, from dawn to close of day,  
Receiving naught but smiles for pay,  
His good wife toils, and anxious care  
Has faded lip and cheek and hair.

Acres on acres stretch away,  
Of woodland, corn, of wheat and hay;  
His cattle roam o'er many a hill,  
His brook 'et turns the groning mill  
Yet this abundance nothing yield  
To pay the mortgage on his field.

Four sturdy sons, four daughters fair,  
Claimed at his ban is a father's care.  
He gave them labor without end,  
And strove the rivals like his to bend  
Into the narrowing groove of thought;  
Interest to be earned, clothes to be bought.

No books; no pictures on the wall;  
Carpenter's rooms, and dreary hall  
Why think it strange such farmers' boys  
Should seek the city's pomp, and noise?  
Should learn to follow the slight of home,  
Where naught of grace or joy may come?

Yes, Farmer John is growing poor!  
You feel it as you pass his door.  
His old brown house is small and mean  
The roof is warped by crack and seam;  
The leaning barn, the half-hinged door,  
Proclaim old John is very poor.

Why think it strange his poor old wife,  
Who coined for him her very life,  
Should pause at last 'neath fortune's frown,  
And lay her weary burden down  
In joy, to walk the streets of Heaven,  
Where naught is so'd, but all is given?

—Industrial Age.

## Miscellaneous.

## How to Select Flour.

1. Look at its color; if it is white, with a slightly yellowish or straw-colored tint, it is a good sign. If it is very white, with a bluish cast with white specks in it, the flour is not good. 2. Examine its adhesiveness—wet and knead a little of it between the fingers; if it works dry and elastic it is good; if it works soft and sticky it is poor. Flour made from spring wheat is likely to be sticky. 3. Throw a little lump of dry flour against a dry, smooth, perpendicular surface; if it adheres in a lump the flour has life in it; if it falls like powder it is bad. 4. Squeeze some of the flour in your hands; if it retain the shape given by the pressure, that too, is a good sign. Flour that will stand all these tests it is safe to buy. These modes were given by old flour dealers, and we make no apology for printing them, as they pertain to a matter that concerns everybody, namely, the quality of that which is "the staff of life."

## Wool Growing in Germany.

Mr. L. A. Merrill, in a lecture before the American Institute Farmers' Club of New York city, on sheep husbandry in Germany in relation to the variation of fodder daily, said:

The grain fields, and not almost wholly meadows, as in our country, are made greatly the maintenance of their flocks during winter; thus not a pound of straw nor a pound of anything valuable is permitted to be wasted. Hence the cultivation of sheep and crops, in a measure, are mutually dependent on each other. The manure of the flock augments the quantity of the grain, and thus a larger quantity of straw is provided for it in return. We also observe displayed their knowledge of that instinct of the sheep as seen manifested in its eagerness for varieties of food and its love of frequent change. In this habit we behold that wise economy of nature in endowing it with instincts to promote its welfare to the greatest extent in every point of view. One kind of food may develop muscle and another make fat; but it seems to be aware that many kinds are required to enable its digestive organs to effect such chemical combinations as will nourish the wool and assimilate the organic substance which forms the external part of the filament.—*Western Rural*.

## Keep a Diary.

Probably there is nothing of equal importance, more neglected in farm or country life, than the keeping of a diary. A note made of business transactions; the kind and amount of labor daily performed; also the weather peculiarities of the season, &c., as a reference, is worth many times the time and trouble taken—which is but little—to write it. Then the little incidents and changes that give variety and form, the lights and shades of the passing days. If a man keeps no diary, the "path crumbles away behind him," and his feet leave it, and the days gone by are little more than a blank, broken by a few dim shadows. This life is nearly all confined within the limits of to-day. Who does not know how imperfect a thing memory is? It not only forgets, it misleads. Things in memory do not merely fade away. They change their aspect; they turn to something quite different from the fact. The picture of the past, which memory unaided by any written records sets before us, is often entirely wrong. How capriciously some events seem quite recent, which the diary shows are really far away; and how unaccountable many things look far away, which, in truth, are not left many weeks behind us. I think almost every person would be interested in looking back, day by day, upon what he did and thought, and the passing events upon that day twelve months, five or ten years. When we look upon the record, all the surroundings of that season are before us, many little things come up again which we know quite well we never would have thought of again but for a glance at these words, and still which we would be sorry to have forgotten.

Old times come over us; we seem to live those days over again, and to be in the midst of the scenes of that time. In short, most persons, after keeping a diary year after year, come to consider it almost indispensable, and its value increasing with increasing years.—*Maine Farmer*.

## Your House.

Do think seriously about it, if you are going to build one, before you lay the foundation stone. There is so much of your whole career depends upon where it stands. Don't put it down in a hollow! You may call it a vale or a dell, a dale or a valley, or whatever poetry comes uppermost; but, my word for it, you will be in a hollow after all. It is not really necessary that your new structure should go upon the site your grandfather honored with his, just because the well and the garden and the footpaths are located. Go from point to point on the farm; find where you have the favor of sun and air-currents; the most cheery view and grandest outlook! Get upon a hill where there is breathing room—where you can look down upon the world and it will be forced to look up toward you. There's more in it than you may imagine. There's a saving of health and spirits, and patience and self-respect and dignity hid therein. A feast of beauty continually before the eye is an unsuspected famine to doctors and—devils. Ah, you will find a large percentage of comfort to your life by being considerate in this.

And when you have made your choice, why not set to work to beautify it? A bit of fence and the wife's offering of rose bushes in the yard is not the best you can do. Spread out a trifle. Don't murder all the trees off for the sake of the grass. If nature forgot them, you can supply the deficiency. I tell you it will pay. It will bring a cash value to your farm to have it known as the nicest one in the neighborhood; it will get you customers and bargains and influence, if that is what you most prize, which I trust is not. But, above all, it will be the strongest wall of defence you can build between your children and evil influence, if you put your heart into the work, and a shrine where their memories will worship for ever!—*Rural New Yorker*.

## Measuring Hay.

To measure the contents of a stack of hay, proceed as follows: If it is a round stack, tapering to a point from the ground, measure the width half way between the ground and the peak of the stack, multiply this width by itself, and divide the sum by 7854; this will give the average area of surface covered by the stack. Then multiply that by the height from the ground of the point where the width was measured. If these measurements are feet, the sum found is the cubic feet in the stack. If the hay is timothy, orchard grass, millet, or Hungarian, 500 feet will make a ton, or a cube eight feet each way. If the stack is very solid, and was cut when dead ripe, 350 feet will make a ton, or a cube of seven feet each way. If the hay is mixed with clover, about 700 feet, or a

cube nine feet each way, will make a ton, it is all clover, or light meadow grass, of red top, 800 feet will be required to weigh a ton unless it is pressed very hard, when some allowance must be made. These estimates are made from notes of a great many stacks and mows of various kinds, and will give a fair average.—*Tribune*.

**AVENUES.**—In laying out a place, it is of the utmost importance to bear in mind that an avenue is a costly adornment, and may most easily fail to confer the dignity for which it is designed. Plant a grand avenue of elm or chestnuts or beeches in a straight line as an approach to a flat-faced mansion, and you transform the mansion into a toy; you shrink it up to the dimensions of a stage scene, and as you view it from the further end, you are compelled to say "distance" does not "lend enchantment to the view." Nor is that the only objection, for the larger the avenue the more completely it cuts the property like a wall, breaks up the views, brings in straight lines and angles where they may be utterly out of place, and requires of us that we shall estimate its value and appropriateness from its own centre; whereas a stretch of wood or a series of park clumps interest and please us, no matter from what position we view them, and, in fact, they present as many agreeable aspects as there are points of observation commanding them. Moreover, this mode of approach may reveal rather than conceal the defects of a place. If the house is low, it may be made to appear lower; if it rises above the level of the approach, the view of the latter from the windows will be unpleasant; and if we adopt a winding course for the road, or even a very gentle sweep, we sacrifice that strict perspective tending to a vanishing point which is one of the principal charms of a good, and the great defect of a bad, avenue. It is a thing to think twice about; for it may be good or bad with the very same materials, according to the circumstances and requirements of the case. In my opinion, an avenue can only be adopted with advantage in a flat country, where the mansion is on the same level or very little above it. If the mansion is below the level of the approach, broken plantations will be the best adornment, for they may be made to conceal the defect, but hard and fast lines will augment the defect and invite attention to it. A dead flat, a great space, and a double row of trees, planted on platforms, will ensure the grandest effect possible with this particular feature; and the grander the mansion, the more dignified and noble should be the approach to it.—*Gardener's Magazine*.

**PROLIFIC SHEEP.**—James Tanner, sen., Township of Seneca, has four ewes which had eleven lambs last week; he also had four ewes last year which had twelve lambs.

THE San Francisco *Commercial Herald* says there is good reason to believe that the cereal and other crops of California for 1874 will be unprecedentedly large, and that the wheat yield alone will be in the neighborhood of forty million bushels.

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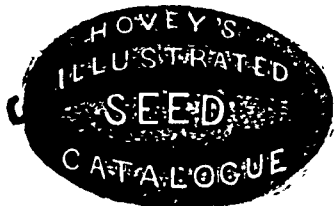
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