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THE ONTARIO FARMER,

A MONTHLY JOURNAL OF

Agriculture, Horticulture, Country Life, Emigration, and the Mechanic Arts.

VOL. III.

HAMILTON, FEBRUARY, 1871.

No. 1.

The Farm.

HINTS FOR THE MONTH.

Re-read and practice yet more faithfully the suggestions under this head in last number. Prosecute with unremitting diligence the labour of winter. Prepare in every possible way for the coming season of hard work and hurry. Continue the care of domestic animals. Whether they are to yield milk or perform labour during the coming season, their value will greatly depend on the winter care they get. The well-being of stock must be a constant study, and unceasing object if they are to be profitable. Diligence only can be successful. Neglect will certainly bring loss. Keep animals warm. Not shelter merely, but comfortable quarters are needed. See that they are kept clean. Give them food, wholesome food, and plenty of pure water. Avoid waste. Economize by chaffing coarse fodder, and by having grain chopped or ground. Mix and change their food. Every farmer should lay in a stock of ice. This is the month to do it. Don't say I have no ice-house, but go to work and make one. The roughest kind of a board shanty, built in a level place right on the top of the snow will answer. Pile in the ice. Encase it in a foot of sawdust, or chaff. Provide ventilation above. Be thinking of seed-time and lay in a supply of seed of the very best quality. It is poor economy to sow inferior seed just because you happen to have it, or you can get it cheaply. It is also wretched management to have to be running round for seed, when ploughing and sowing are on hand. If you require to hire hands for spring work, look out for them early. Do not fail to chop and haul a plentiful supply of firewood. What is more annoying than to be obliged to go to the woods for fuel in the busiest season of the year. Get beforehand with work. Drive it, and see that it does not drive you.

GOOD FARMING IN A NUTSHELL.

The far-famed Bakewell, of Dishley, Leicester England, the founder of the new Leicester sheep, and the man who lived a century before his day,

used to tell an anecdote with exceeding high glee of a farmer of the olden school and golden times. This farmer, who owned and occupied 1,000 acres of clay land, but poor in point of money, had three daughters looking their father very hard in the face for money. He went to Bakewell to know what to do for them. Bakewell told him to keep his money and give each daughter some land, and make it known that he would do so, and he would very soon lesson his family at home. He then made it known that he would give his eldest daughter 250 acres of land. It need hardly be added that the lady had forthwith plenty of beaux to choose from;—the father's house was haunted with young men, and she soon was married, and the father gave her the portion that he had promised, but no money; and he found by a little more speed and better management the produce of his farm increased. Three years after he made it know that he would give his second daughter 250 acres of land, which drew shoals of beaux, and she soon got married, and the father gave her a portion. He then set to work, and began to grub his furze and fern, and plowed up some of his poor furze land—nay, and where the furze covered in some cases nearly half the land. After giving half his land away to two of his daughters, he found the produce of his farm increased, because his newly broken up lands, brought him excessive crops. At the same time he farmed the whole of his land better, for he employed four times the labor upon it; had no more dead fallows the third year; instead of which he grew two green crops in one year, and ate them upon the land.

A garden, Bakewell told him, never required a dead fallow. He no more folded from a poor grass close to better the condition of a poor plowed one. But the great advantage was, that he had got the same money to manage 500 acres as he had to manage 1,000 acres. Three years after the second marriage, he made it known that he would give his third and last daughter 250 acres of land. She soon had a beau in readiness, and three or four more within call, and she was married within a week. She thought it never too soon to do well, and the father portioned her off with land.

He then began to ask himself a few questions,

how he was to make as much off 250 acres of land as he had done off 1,000 acres. He found necessity was the mother of invention. He then paid off the bailiff, who weighed twenty stone; he found that he had been helping the men to manage the master instead of helping the master to manage the men. He then rose with the lark in the long days, and went to bed with the lamb. He got much more work done for his money, for, instead of saying to the men, "Go and do it," he said, "Come, my boys, let us go and do it." He found a great difference between "come" and "go." He made his servants, laborers and horses move faster—he broke them from their snail's pace; he found the eye of the master quickened the pace of the servant. He grubbed up every bit of furze on the farm, and converted a great deal of corn into meat. He preserved the black water, the essence of the manure, and conveyed it upon the land. He cut down all of his high hedges, straightened his zigzag fences, cut his serpentine water courses straight, and gained much land by so doing; made dams and sluices, and irrigated all the land he could.

Some of his hedges and borders were covered with bushes from ten to fourteen yards in width, and some of his closes were no wider than streets; and there he grubbed up the hedges and borders, and threw several little closes into one. He found that instead of growing white thorn hedges and haws, to feed foreign migratory birds, in winter, he ought to grow food for man.

"I sold him long-horned bulls," said Bakewell, "and told him the value of labor, and what ought to be performed by a certain number of men, worked oxen or horses within a given time. I taught him to sow less, and plough deeper and better, and that there were limits and measures to all things; but, above all, the husbandman ought to be stronger than the farm. I taught him how to make hot land colder, and cold land hotter; light land stiff, and stiff land lighter. I advised him to breed no inferior cattle, sheep or horses, but the best of every kind, as the best consumed no more food than the worst. Size has nothing to do with profit. It is not what an animal makes so much, as what it costs making.

The farmer became a new man in his old age, and died rich, by adopting Bakewell's improved management.

GRASS OR GRAIN.

In one of its articles on "the Meat Manufacture," the *Agricultural Gazette* draws a comparison between the products of grass land and land under the plow. In this comparison the estimate is not based upon the yield of what really ranks as the best grass land,—as it is taken for granted that

that which produces twelve to fifteen tons of food per acre, yearly, say two and a half to three tons hay, "without any labor but that of repairing the fences which divide it, destroying the docks and thistles which invade it, and supplying manure to maintain it, is producing more at less expense than perhaps it could do in any other condition." But with poor pasturage or meadow, on which eight tons of green food, or say one and a half to one and two-thirds tons of hay, is the highest average yield, the opinion is expressed that a rotation with grain crops could often be substituted to great advantage. Under good English management, and the writer speaks from his own experience, such land with a six course system of rotation, has been made to yield, *be ide the grain it harvested*—First year, twenty-five hundred pounds wheat straw; second year, twenty-four tons mangels wurtzel; third year, twenty-five hundred pounds wheat straw; fourth year, eighteen tons swedish turnips; fifth year, twenty cwt. of barley straw; sixth year, ten tons clover (green); or a total of fifty-two tons green food and three and half tons litter, in addition to grain,—which under grass, at eight tons a year, the total product would have been only forty-eight tons green food. As to the practical results, he says:

"On the farm I write from, three-quarters of which was formerly grass, a stock of about forty head of oxen, fattening to sixty or seventy stones, and between two hundred and three hundred sheep, fattening to twenty-four pounds a quarter, with fifty or sixty pigs, are now kept during Winter, and about half the numbers during Summer, where formerly a herd of twenty-five cows, and about twenty yearlings and two-year old heifers, with a few pigs, were maintained in store condition while in addition to the above, the land now permits an annual sale off it of about 4,000 bushels of wheat."

Pounds of Grass to a Pound of Meat.—It is stated, on good authority, that an acre of the best Lincolnshire grazing land—and it is a county famous for its grass—will carry an ox and a sheep "from New May-day till Old Michaelmas," and that while grazing during this period, the former will gain 280 pounds and the latter forty pounds, in net weight of meat when slaughtered.

The acre will thus yield 320 pounds of meat. Its produce of grass may be sixteen tons—perhaps more. This is one pound of meat for every cwt. of grass, but we must remember that the grass of such land differs from the average in the quality as well as the quantity of its produce.

THE FARM.

Farming is a profession, not to say a science. If anyone doubts this statement let him leave his city home—for no one bred in the country will doubt it

—and undertake to cultivate even a garden of half an acre for the summer. He will then find that knowledge is as essential to the right use of the spade as of the pen, and there is as great a difference between the scientific farming of Flanders, where literally not a weed is to be seen, and that of many farmers, the wealth of whose soil is about equally divided between fruits and weeds, as between trade of a modern commercial city and barter of a back-wood settlement. It is true that agriculture has been the last to receive the impetus of modern science. It is true that many agriculturalist are content to go on in the ways of their fathers, because experiments are costly. But it is also true that they are unable to compete with those who understand the use of new instruments methods and fertilizers.—Agriculture is also becoming in this country a popular recreation. Many gentleman is content to spend on his country-seat money which he makes in the counting room. The practical farmer is thus able to get the benefit of experience without paying for them. This change in agriculture, which has converted it from a drudgery to an art, has created a demand for a corresponding literature. "Fifty years ago a stable agricultural periodical did not exist on the American Continent." Now every considerable district has one, while almost every weekly paper secular or religious has its agricultural department; and it will not be long before something of a library will be a part of the furniture of every well-ordered farm.—Book Table, *Huiper's Magazine*,

DOES DAIRYING IMPROVE LAND ?

Mr. X. A. Willard, in a recent article, says :

There is no question but that lands may be kept in fertility and increased in productiveness with more ease and less expense under the dairy than under a system of grain-growing. The dairy farmer has the means at his command for making large quantities of manure. That he is wasteful of this material, and injudicious in its application it may be often, and perhaps as a general rule, is charged against him. Still under all mismanagement in this regard, it is believed that dairy lands are steadily improving in the elements of fertility, and are now in better heart for grain crops than when grain-growing was made the business of the farm. It is true that upon many farms the yield of grass is much less than it should be, but this is not so much on account of any lack of fertility in the soil as from neglect of proper culture—allowing weeds to creep in, overstocking pastures, feeding down the aftermath of meadows, cutting grass when over ripe, and other abuses which, in time have served to lessen the product. When farms have been properly managed, and have received the liquid and solid excrement of the stock, judiciously applied, they have been wonderfully improved, and are annually yielding immense crops.

Herkimer County, the oldest cheese dairying county in New York, contains about 278,000 acres of improved land. This is divided up into two thousand farms of 50 acres and over running from three to twenty acres; or in all, say about three thousand farms. The value of products taken from the farms in 1864, according to the State census, was as follows :—

Dairy products	\$3,157,129
Grain products	1,106,780
Some thirteen other products	2,524,882

Total agricultural products for one year \$6,788,791

Now if this sum was equally divided among the 3000 farms, it would give each farm \$2,263 as the average income. But as there are 1,000 farms that run from three to twenty acres, or that are under fifty acres each, some idea may be had as to whether the farming is as productive in its results as in in other sections. If we have figured correctly, the average product per acre in 1864 amounted to some \$24. The highest annual product of cheese sold from the county has been a little above 18,000,000 pounds. In 1864 the cheese crop was only a little over 13,000,000 pounds.

OYSTER FARMS.

How would you like to live where you could go out and pick oysters for dinner, as you do apples? You need not smile; you could easily do it if you lived near an oyster farm. And it is about these curious farms I want to tell you.

You must know that we eat so many oysters, that they grew scarce in many places, and People began to fear that we should exhaust the supply. That would be a sad calamity to those who are very fond of oysters; so some enterprising men set themselves to work to cultivate oysters as we do potatoes—only in a different way. When the little oyster is launched into life, to take care of himself, his first care is to secure a home. His wants are very simple, requiring merely a holding on place—for holding on is the speciality of an oyster. If he cannot at once secure a safe home, he is almost sure to be devoured by fishes, for fishes like oysters as well as men.

As soon as this fact about the young oyster was discovered by the wise men, they conceived the idea of providing homes for the little creatures, as men provide homes for poor children—only, as oysters don't care for cradles, and milk, their nurseries were made in this way :

Strong stakes were driven into the mud—under water, of course—and between them were woven branches of trees. That was all. Having the nurseries ready, the men now brought several boat-loads of old oysters, and placed them on the ground around the stakes, to start the farm. As the young oysters are hatched, they naturally attach themselves to the branches, and proceed to grow. Each oyster is said to lay two millions of eggs in a season.

There are other ways of farming oysters. One way, in use in Italy, where a lake is devoted to the purpose, is to build a small hill of stones, and make a sort of fence around it, with stakes driven into the ground. The old oyster live on the hill, and the young ones on the stakes. When the farmer wants oysters, he has only to pull up a stake, and pick them off. In France there is still a different way. The farms are enclosed in stone walls, and large stones are scattered among the oysters, who live on the ground. Of course the baby oysters live on the stones. There are thousands of these farms on the shores of France. They have even gone so far as to improve the flavor of the common oyster by artificial feeding.—*Olive Thorne, in Interior*.

GROWTH OF CEREALS.

At the last meeting of the British Association, Mr. F. F. Hallett read a paper on the "Law of Development in Cereals." His experience showed him several years ago, that grain and especially wheat, was injured by being planted too closely. He found a wheat plant would increase above the ground in proportion as its roots had room to develop, and that the roots might be hindered by being in contact with the root of another plant. He continued a series of experiments, planting one kernel of wheat only, and succeeded so well in improving the method of cultivation as to raise wheat whose ears contained 123 grains. In the course of his investigations Mr. Hallett made other discoveries with regard to the growth of cereals, which he sums up as follow :

1. Every fully developed plant, whether of wheat, oats, or barley, presents one ear superior in productive power to any of the rest on that plant.
2. Every such plant contains one grain, which upon trial, proves more productive than any other.
3. The best grain in a given plant is found in its best ear.
4. The superior vigor of its grain is transmissible in different degrees to its progeny.
5. By repeated careful selection the superiority is accumulated.
6. The improvement which is first raised gradually after a series of years is diminished in amount, and eventually so far arrested, that practically speaking, a limit to improvement in the desired quality is reached.
7. By still continuing to select, the improvement is maintained, and practically a fixed type is the result.

WOOD ASHES.

Ashes may be sown at any time, even in winter. As they are a mineral they will cling to the soil. They may be applied on meadows (the best place for them) any time between mowing and an advanced growth in the spring; but the nearer the mowing time the better, and if applied immediately after the crop is removed, the best of all. The potash and soda will at once do their work. The other ingredients are more laggard and work more slowly; they, therefore, have their benefit extended. As to the amount to be applied, this is variable—variable by the soil. If the land is old and much run, the probability is that ashes will benefit it, and that they may be applied largely, say 50 to 60, and even more bushels to the acre. We have known the latter figure to work almost a miracle on meadows. Indeed, we have never known ashes applied plentifully, fail to have a good effect—the effect generally corresponding with the amount sown—Any land but new land buried over, we think will be benefited by the application of this mineral fertilizer. The difficulty is, we never apply enough. Five bushels, and even ten, show but little effect. The readily soluble ingredients, which are but a small part, cannot, therefore, be expected to make much difference, and the rest are slow and less evident. The effect of ashes is immediate, and continues for years. We would by no means use chip manure for wheat unless the soil lacks vegetable or carbonaceous materia. Wheat thrives well in a

soil where the mineral or inorganic matter prevails. It wants a compact soil which humus does not make. But for fruit trees chip manure is excellent. It comes under the head of leaves, forest mould, and such like material from vegetable decay.—*Cultivator.*

USEFUL RULES FOR FARMERS.

Sometimes we are short of hay, or that article is too valuable in the market to be fed to cattle. It may be useful to know in what proportions we may feed other articles in the place of meadow hay.

Taking as our hypothesis that we feed 40 pounds of good meadow hay, with nothing else, per day to a fattening beast, the following table will closely approximate the quantity of each different kind of new feed that will form a substitute for one pound of hay withdrawn.

WINTER FOOD.		Lbs.
Oat straw, cured like hay		1½
Chopped oats, peas or barley, from... 1-30 to 1-35		8
White turnips		6
Swedes, parsnips, carrots or beets.....		2½
Potatoes		
SUMMER FOOD.		
Vetches	3 to 1-15	
Grass	4	

LIVE WEIGHT.

To find the carcass weight of cattle by measurement of the live animal. Measure for length from a slight hollow which will be found just in front of the withers, to the point on the tail exactly over the hindmost part of the buttock. Measure the girth immediately behind the elbow.

Now multiply the girth by itself, and this product by the length, then multiply the product last found by the decimal multiplier to meet the case required, according to the following table, and the result will be the carcass weight in pounds:—

Condition of Beast.	Decimal Multiplier.
Half fat.....	3.22
Moderately fat.....	3.36
Prime fat	3.58
Very fat	3.66
Extraordinarily fat	3.85

Example—A short-horn steer, in good order for the butcher—or prime fat—measures 4 feet 9 inches in length and 7 feet 6 inches girth. Required to find the carcass weight.

The girth, 7 feet 6 inches, or 7.5 feet, multiplied by itself, gives 56.25; this multiplied by 4 feet 9 inches, or 4.75, gives 267.1875; this again multiplied by 3.5, the beast being prime fat, gives 935.15.

Therefore, the carcass weight of this animal is 935 lbs. From this deduct the usual proportion for hide, horns, offal and tallow, and we have the amount of beef.—*Ex.*

ROTATION A LAW IN AGRICULTURE.

The farmer grows a certain variety of potato year after year, until it fails to produce the same good crops it once did. He sends a few hundreds of miles for new seed of the same variety, and it will at once, and without adding anything to the soil, produce as good crops as it ever did. We have heard agriculturists deny the possibility of this,

but we think the most practical farmers know that this is really the case. Yet surely the same variety of potatoes require only the self-same elements.—There has been no other difference but the change.

So also in the matter of manure. People sometimes find benefit from phosphates, or guano, or some other commercial fertilizer. But in a few years it turns out to be no better than brick dust; but any other kind of manure will have a wonderful effect. We knew a friend once who used to raise enormous crops in his vegetable garden, which was annually manured from his horse stable. It failed at last. Even weeds seemed to de-pise it. He changed from horse to cow manure, and again wonderful crops rewarded him. Chemically there is not much difference in the manure. The change was more than all.

It is well to remember this as a general principle. Nature loves change. There is a seeming contradiction, for we speak of the certainty of nature's laws. But those who know her best, know that she has laws which seem contradictory. The same elements that make fire, largely make water, which is the enemy of fire; and some of her most harmless elements will often unite to make the deadliest poisons. At any rate, constant as she generally is, we know she sometimes likes a change.—*Forney's Press.*

THE CHESTNUT AS A CROP.

We find the following in an American exchange:

"Fifteen or twenty years hence chestnut timber, scarce and costly even now, will command a price which will make the owner of a chestnut-wood lot a rich man, providing the lot is large enough and the trees of sufficient size to make good timber.—The chestnut grows very rapidly, and will flourish on soil which is not suited for the cultivation of ordinary farm crops, as well as on the now treeless prairies of the West. A peculiar value is just now possessed by chestnut, as its wood happens to be very fashionable for the interior decorations of houses. There can be no question but that the beauty of its grain will be the same a quarter of a century hence, and, although it may pass through one or two periods of comparatively unpopularity it will of necessity be in demand for many purposes. The great demand for railroad ties also enhances its value at present; but we do not look upon this demand as likely to last beyond the present generation, as it is quite possible that some manufactured substitute will be adopted before many years, if, indeed, railroads themselves are not superseded by some improved means of travel. At all events, we believe it capable of demonstration that it would be much better to raise one good crop of chestnut trees on land suited for the purpose than twenty poor crops of wheat or corn on land of the same quality but comparatively unsuited for their culture."

SUCCESSFUL SUGAR-BEET CULTURE.—The *Tribune* comments on the successful experiment in sugar-beet culture, made at Chatworth, Ill., as follows: We have always believed in beet-sugar manufacture in our country, especially in the West; and that the time would come when it would be demonstrated that it was in many respects, for the farmer and the tradesman, a most valuable industry. We have waited for the confirmation of these views with

"hope deferred." But it has come at last, and from Chatworth, which, with all its early promise and advantages, had made such unfruitful returns. The causes of this disappointment have been, chiefly, a bad location and foreign management. Constant cultivation has removed many of the disadvantages of the soil, while the appointment of a good western farmer as head of the enterprise has substituted practical common sense for theory. The result is, that this season there has been a saving in the field work, or cultivation of the crop of beets, of nearly 30 per cent. over the results of the best German or French culture; the beets being put into the pit at \$2.70 the ton, as against \$4, the lowest price at the European factories. This has been accomplished by the use of machine in the place of hand labour, under the supervision and inventive genius of the superintendent, who has other plans in process of completion that will reduce the expenses of this part of the industry perhaps twenty per cent. more. Then, as to the product of the factory. The first yield of sugar has been placed upon the Chicago market, without brand, that it might thus secure an impartial test. It was pronounced by the best experts of the city A. 1 New York sugar, and readily brought the price of that article. It is our conviction, however, that for complete success elsewhere in this industry, there must be hearty co-operation among the farmers or the country adjacent to the sugar mill. We believe the great success of the European mills is largely due to a recognition of this fact. No other crop has, in its cultivation, such enriching and preservative qualities; and this truth has induced the small farmers of Europe to aid in all ways the development of beet culture.

ORNAMENTAL TREES.—We believe after all that has been said and done, shade and other ornamental trees are not sufficiently appreciated. We hear one and another talk of cutting down this oak or that maple that have been many years grown, just as though they were like a building that could be replaced whenever desired. And then, again, there is not one shade-tree planted where there should be hundreds if not thousands. Those who settle our country, and it is true of those who spread all over the United States, felt it their duty to level the forests and clear up the land, no great matter what became of it afterwards, and so we find in the more thickly settled parts of the country very few of the old trees. There are miles of road and street that have not a single tree by their side, that should have them for shade and ornament their whole length. There are tens of thousands of acres of land good enough to grow wood, that are now nearly barren as the Desert of Sahara, that should be planted with trees, or what might be better in some cases, sown or planted with the seeds of fruit trees. In some sections of the country attention has been given to, and premiums awarded for plantations of forest trees. This work should go on until a large part of the rough, stony lands of New England, to say the least, should be restored to their former glory and beauty, and we may also add profitableness.—*Am. paper.*

TOP DRESSING ON GRASS LANDS.—We have frequently called the attention of our readers to this method of sustaining the fertility of meadows. The compost should be fine, so as to be spread evenly

on the surface, and find its way readily to the ground in small particles ready to be dissolved and carried down to the hungry mouths below that are reaching out in every direction for food. Manure or compost applied in lumps is of very little value in enriching the soil. The surface manuring should be done early, in order to have the best effect on the crop of next season. If the manure is reduced to the proper condition of fineness, and is not already exhaling its valuable properties in the process of fermentation, there is no occasion to fear loss by evaporation. Its nutritive properties will be drawn downward to meet the requirements of the growing grass.—*V. Reo d and Lamer.*

FARM GLEANINGS.

England uses 83,000 tons of bone-dust and 210,000 tons of guano a year.

New York, which used to be the great wheat-growing State of the Union, now produces fourteen million bushels less than her people consume.

The Andrew (Iowa) *Journal* says that the largest hay field in that county is near the mouth of the Maquoketa river. It comprises 3,000 acres.

A farmer who runs his farm without a record of expenses and the cost of different crops, is like a ship without a compass or a log book.

Mr. Greeley, on being asked by a Pennsylvania farmer why he didn't write a new work entitled "What I Don't Know of Farming," is said to have replied that life was too short.

No wonder that we have a close money market in the country, and that the rural population complain of hard times—hard times that this system of bad management will always insure."

The *Delta* says that George W. Tift, of Buffalo, N. Y., has about 3,000 acres of land located about nine miles north of Avoca, Iowa, out of which he proposes to make a model farm, and designs ascertaining if Chinamen will make good farmers, and to that end will import fifty Johnnies early next Spring. He has a ready contractor for the building of an extensive row of houses for their accommodation.

The French, by a simple process, reduce coarse fish and fish offal to a fine powdered soil fertilizer. The operation consists of boiling, pressing out of oil and water, drying and pulverizing. Such a powder contains twelve per cent, of nitrogen and fourteen per cent. of bone earth. It is said to be as valuable as Peruvian guano.

The *County Gentleman* says that in making compost he ps, salt may be sprinkled over each successive layer of manure, at the rate of a peck to a load, more or less, and this is a good way to apply it. If sown on the land it soon dissolves and is absorbed by the soil, and hence the importance of spreading it evenly, so that certain spots will not be oversalted, while others have none.

Hent's and Home points to a lesson from the drouth in the fact that potatoes which were planted on or near the top of the ground in sections where the drouth has been excessive, were hardly worth digging, while those in adjoining fields which were put at the bottom of a deep furrow and never hilled at all, yielded well.

The *County Gentleman* says the only reason why better crops of potatoes are obtained from large

potatoes used for seed then from small ones, is that the former gave a greater supply of nutriment to the young sprouts. It says that so far as any other reason is concerned one might as well expect that using graft from a large tree would produce larger trees that grafts from a small one of the same kind.

M. L. Dunlap thinks that a great trouble with many farmers is that they "are too ambitious to get rich at once; buy a large farm, get in debt for material and labor, are compelled to sell at a bad stage of the market, or when other work needs their attention, and, if they do not fail, they have one continual struggle for existence. Had they been content to operate with their own capital and labor, they would have gradually risen to a higher position.

For the improvement of pastures the *Oio Farmer* recommends that they be divided; one half stocked with sheep, and the other half with cows, and alternate changes every Spring; or by an entire change from cows to sheep and from sheep to cows ever, few years, always retaining a cow or two for family use. The two, however, never to run together.

The *New England Home* says that the present season has witnessed the inauguration of a new trade in garden vegetables between Chicago and Boston. Hubbard and Marrow squashes are shipped from the latter to the former city, and the price is \$18 per ton. Early squashes sold in Boston for \$3 per dozen; but later the price paid realized to the grower about \$50 per acre.

The practice of sowing Spring wheat on plowed up fields of Winter-killed wheat, is condemned by some farmers. It is held that the balance of fertility has been disturbed, and a crop has been grown a young one it is true, but still such a one as required for its support what the land was capable of finding, but which it could not find for both Fall and Spring wheat, even where Fall wheat has been ploughed under.

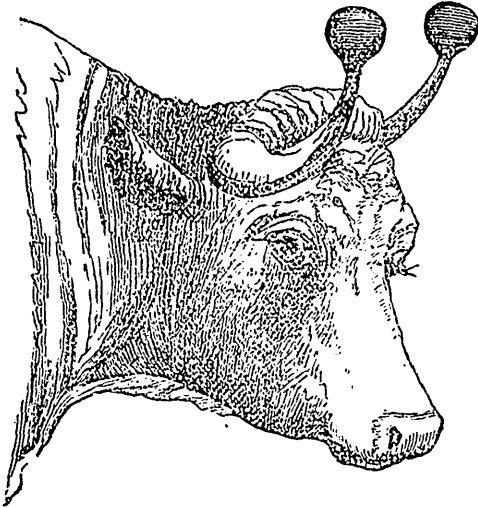
David Mosley in the *New England Home* thus speaks of the use of lime in curing hay: "Last year we purchased one barrel of good lime, knocked out the head and let it air slake in the barrel. When we carted our hay we did not spoil it by drying. Unless it was very dry we put on from two to three quarts per ton of hay, say one-third of a ton, and then spread about one quart of lime on the same through both crops. We cut about the same quantity of second crop in good season. Our neighbor, Lewis, practiced the same on his hay crop. We never had our hay so uniformly cured. Our horses and all our stock were benefited. I have done the same this season. We like it better than salt."

The *Boston Journal of Chemistry* says:

The order in which the different kinds of straw stand relatively, as regards nutritive value, may be presented thus: Oat straw, barley straw, wheat straw, rye straw. Unquestionably it will be for the best interests of farmers in most sections to diminish the amount of straw used for litter, and increase its use for fodder. In many of the Northern States, rye straw is of equal value with the best quality of timothy, as it is used largely for bedding horses in towns and cities. Of course where straw commands such high prices, and is of such ready sale it would be absurd to feed it to animals. We must not be understood in these remarks as holding to the

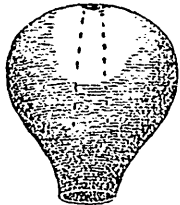
view that any kind of straw can supersede the use of good hay and grain, but rather that it contains a sufficient amount of the elements of nutrition to make it a valuable substitute for these usually more costly products.

The Live Stock.



BALLS ON THE HORNS OF CATTLE.

Cattle not infrequently gore each other, and it is no uncommon thing for persons to receive accidental injury from the sharp points of the horns, while feeding or attending them. A friend of ours lost an eye, while feeding hay to his cow, in the grey of a winter's morning. Such occurrences may easily be prevented by some such contrivance as is represented in the accompanying engravings, which ex-



pl. in themselves sufficiently to enable any one to act upon the suggestion, thus to take wise precaution against danger. If the knobs are neatly turned, they will be rather ornamental than otherwise. We consider a good sized wooden ball preferable to the small brass ones kept for sale at the hardware stores. The brass ones are not large enough to obviate all risk, since serious injury might be done by any energetic toss of the head, in spite of them. The balls illustrated herewith, are easily procurable, cheap, and an almost unailing safeguard.

VENTILATION OF MILK ROOMS.

In an essay read at the last meeting of the Vermont Dairy Association, O. S. Bliss, Secretary of the Association, talks in this wise on the above subject:

The ventilation of milk rooms is generally even less philosophical than that of stables. The end sought in the two cases is entirely different, demanding precisely the opposite treatment, and the provision for a strong current or draught of air is as uncalled for, and even injurious, in the one case, as it is indispensable in the other.

It seems to be forgotten that currents of air only reduce the temperature in proportion as they cause evaporation, and this is just what the dairyman does not want. It dries the curd of the milk into flakes which adhere to the cream, producing what are known as "flocks,"—those very undesirable white specks in the butter. We repeat, the air in the milk room, unlike that in a living room, does not require to be constantly, or even frequently changed, and it exerts a far better influence if left undisturbed, especially in warm weather.

Milk rooms, therefore, should be ventilated only from above, and one opening is sufficient for all practical purposes. Were the prevalent notion true, which it is not, that the air in such a room is liable to become pernicious in some of its influences, the opening of the doors several times a day would dispel all such influences.

That it is desirable to so ventilate the room as to evaporate the moisture in and around it, is another fundamental error. A quantity of water or ice upon the floor exerts a cooling influence, just in proportion to the evaporation produced, as we have already said, of the current of air, but it is not desirable to cool one portion of air, and at once to drive it off, to be replaced by another dryer and warmer portion. Such an operation might well be called an attempt to cool "all out-doors," instead of the milk room alone. The moisture of the air in the milk room is not in any respect unfavorable to the production of cream and butter.

Referring to the dry vault, Mr. Bliss says it is the best substitute for the spring-house and is believed by many to be quite as good. The construction does not differ essentially, except that the necessity for heavy walls well sunk in the ground is more absolute in this case. The floor should be flagged or cemented, and the pails or pans set upon it. If shelves are used at all they should be of stone. In very warm weather it may be necessary to wet the floor daily, but generally the temperature may be kept very nearly uniform throughout. If practicable, a shady site with a northern exposure should be selected. In a moist springy soil, though a supply of water cannot be depended on, it may be well to put narrow slats on the ground, on which to set the milk vessels, instead of making a close floor. Of course, in this case, drainage must be provided for, so that there may not be an undue accumulation of water.

STOMACH OF THE HORSE.

"The London Horse Book" gives this useful information concerning the stomach of the horse, and the conditions under which it best acts:

His stomach is small in proportion to his size; he is consequently unable to take much food at a time. He requires to be more often fed; but by this means he is almost always enabled to be at his master's service.

To explain our present subject, it will be sufficient to say that the front of the horse's chest contains

his lungs, by which he breathes. Behind them, separated only by a thin kind of skin, is the stomach destined to receive and digest the food. Each of these organs become larger when in use; the lungs occupying more room when the animal is moving about, and breathing more quickly. The space they then occupy is then so filled, that only one of them can be distended at a time. The horse can swell out his lungs, and breathe hard, trot or gallop fast provided his stomach be empty; he can fill it with safety when at rest, or nearly so, till the food is digested. But if they are both full, the greatest danger is to be apprehended; the horse is sure to be "blown" almost immediately, because he has no room to breathe, and apoplexy may cause the animal to drop dead in a minute.

We have mentioned that the horse's stomach is small compared with his size; and from this we may learn that he is not able to eat much at a time without injury to himself. He is apt to do this sometimes, especially when he has been kept long at work without being supplied with food. When brought home his small stomach is crammed full before any part of it is turned into healthy nourishment to recruit his exhausted frame; he continues eating on, and diseases called the staggers, megrims or apoplexy are the dangerous and generally fatal result.

We may take a hint from this, and see that no horse is allowed to get an unlimited supply of food. A proper quantity should be given, and no more—enough to satisfy his requirements, and then to allow proper time for him to digest. Many a horse has been killed from a fit brought on by the corn-bin having been left open all night, thus giving him an opportunity to gorge himself to death with the tempting food.

COWS IN COLD LATITUDES.

A writer in Wisconsin says. In a climate like this, where the winters are long and cold, it is useless to talk about "good cows" unless they are well wintered, and neglect in this respect is a fault of great magnitude. Hence some farmers give up the pursuit of dairying and raising young cattle in disgust, when the fault is with themselves and not with the cattle.

In order to pay well, cows must be strong and in good flesh in the Spring; otherwise the best of the season is past before they attain a good condition; and here let me say that the greatest fault the farmers of this country ever acquired, one which has resulted probably in the loss of thousands if not millions of dollars annually, is that of "cutting grass too late."

As a rule farmers wait until their "grass is fit to cut," and then secure one-half or one-third in good condition, while the balance becomes ripe, dry, woody and of comparatively little value—indeed, for the benefit of some in this section, let me say they do not commence their haying until they ought to be through. We all know how much better cattle thrive on grass than on hay. Hence early cut hay contains more of the properties of grass, and is far better. Good, early cut hay cured in the "cock" is the best and most natural food for cows in winter and will produce an abundance of rich milk.

Another fault with our farmers is injudicious management in feeding straw the fore part of the

winter and hay in the latter part. Straw should never be fed alone for any considerable length of time unless it is the very best of cut-straw, and poorly thrashed at that, feeding straw once a day and hay the other part. Cows will probably eat more and thrive better if well fed twice a day than when fed oftener, as they will have a better appetite and have more time to "chew their cud," which is a point highly essential.

The necessity of well-ventilated stables is a subject so apparent to all that it hardly seems necessary to mention it in this connection. Yet proper warmth and ventilation combined are things rarely to be found. The effluvia that meets one on opening the door of some stables in the morning is almost equal to a bottle of ammonia, and far more disgusting.

Stables should be high and roomy and so arranged as to admit or exclude the air according to temperature, never allowing a current to reach the cattle. The idea of leaving the stable windows open, because the night is a little warm, and let the wind blow on the cattle during the night is a very poor practice.

CLEAN MILK.

A correspondent of the *Congregationalist* communicates to that paper the following plan for keeping milk perfectly clean: Having recently commenced selling milk, I find it requires much care to keep the cows perfectly clean, and have adopted some new measures which may be of some interest to other milkers. In the first place the floor on which the cows stand is raised so that water will run back into the trench which is about six inches lower than the floor. Before I begin to milk I take a hoe and clean the floor. I then take a bucket large enough to take hold a cow's bag, fill it with cold water, with which I wash their bags thoroughly, which not only makes them clean, but prevents their teats from becoming sore.

Sawdust is then spread on the floor, and as I have some cows which are inclined to brush my face when milking, I take a cord, pass it over a pulley which is fastened overhead behind the cows; attach a weight to one end of the cord, slip noose the other end around the end of the cow's tail, which prevents her from brushing dirt into the milk. I then brush the cows and begin to milk where I began to wash. I milk into a wooden pail, turn it into a tin strainer pail, and then strain it into a tin can through a cloth strainer which is attached to the top of the can by a wire, and we hear no complaint of dirty milk.

CABBAGES AS FEED FOR MILCH COWS.

I have had a little experience in this line, and am highly pleased with the result; they come into feeding for milch cows after corn fodder has been killed by frost, and at a season of scarcity of other green food; their value as a milk-producing feed I think stands fully equal to any other green food I have ever fed; and the product that can be grown upon an acre is very large. Probably the most difficult part is the storage for winter use. To get the most benefit with the least labor in storing and feeding, is the object (or should be) of those who raise any crop for green food for stock; hence it

will be necessary to have some conveniences for storing and feeding the crop after it is grown. For myself, I think the feeding should begin as soon as green corn fodder is injured by the frost; that is usually the last of September or first of October; the milch cows are then carried on with a good flow of milk, which is much better than to let them fall away, and then try to bring them back by high feeding. I find that in changing feed we should begin moderately, and increase as the animals get used to the feed, to the full amount desired to be fed; then keep on steadily with that till another change is desirable, or of necessity must be made. Variety is of great benefit for all farm stock, and changes are often of great benefit to neat stock, more so than at first appears. The feeding of cabbages in connection with hay and meal, as proposed by A Subscriber, will be found very beneficial; at least such has been my experience for the past two years with them.—*Cor. Country Gentleman.*

RIGHT AND WRONG WAY TO MILK.

The Irish Farmers' Gazette publishes the following from Prof. Dick, of the Edinburgh Veterinary College, on the manner of milking:—

"The operation of milking is performed differently in various parts of the country. In some the dairy-maid dips her hand into a little milk, and by successively stripping the teat between her fingers and thumb unloads the udder. This plan, however, is attended with the disadvantage of irritating more or less the teat, and rendering it liable to cracks and chaps, which are followed by inflammation extending to the rest of the quarter. This accounts for the disease occurring more frequently among the cows under the charge of one milker than it does in those under the charge of another; and as this practice is more common in some parts of the country than in others, it also accounts for the disease being more common in these parts. This plan of milking, where the irritation is not sufficient to excite the extent of inflammation to which I have alluded, frequently produces a horny thickening of the teat, a consequence of the cracks and chaps which renders it more difficult to milk than when in its natural state, and, at the same time, predisposes to inflammation when any cause occurs to set it up.

These effects may be and are almost entirely avoided, by the most scientific plan of milking adopted in other parts of the country, where, instead of drawing down or stripping the teat between the thumb and fingers, as I have stated, the dairy-maid follows more closely the principles which instinct has taught the calf. She first takes a slight hold of the teats with her hand, by which she merely encircles it, then lifts her hand up so as to press the body of the udder upwards, by which the milk escapes into the teat; or if, as is generally the case when some hours have elapsed between milking-times, the teat is full, she grasps the teat close to its origin with her thumb and fore-finger, so as to prevent the milk which is in the teat from escaping upwards; then, making the rest of the fingers to close from above downwards in succession, forces out what milk may be contained in the teat through the opening of it. The hand is again pressed up and closed as before, and the milk drawn easily and freely, without the tugging and wrenching inflicted by clumsy milkers."

BREEDING.

The following is from the *American Trif Register*;

Breeding has become a science, and the science in breeding should keep pace with the improvements in mechanics, arts, agriculture, medicine, &c. Through science extraordinary improvements have been made in navigation, manufactures, the raising of hogs, sheep, cattle, dogs, poultry in horticulture, floriculture, etc., to say nothing of the wonders of steam, and the still more wonderful discovery of the electric telegraph.

The highest aim of the horse breeder is, to combine beauty of form, speed and endurance in the horses he breeds. To be able to accomplish this great desideratum, he must also call in the aid of science. This will teach him to investigate the constituents of that vegetable food which forms the best growth and quality of animal substance that best subserves the animal economy. As the mind works out the problem of life in other pursuits, so should the mind be employed in solving the problem of rearing to the highest point of attainable perfection, the noblest four-footed animal that God in his beneficence has placed on earth for the use of man.

According to the best authorities on the subject, there is no fixed age for breeding to mares; yet the most practical writers agree in the opinion, that both stallions and mares are better capacitated for breeding purposes after they have had several seasons of judicious training. Youatt, the highest recognized authority on the horse, and who made the animal a study from the moment of impregnation to extreme old age, also coincides in this theory. He says:

"It is a general observation with those who have devoted their attention to the subject, that horses and mares require much time after they have been first trained, before they distinguish themselves as the progenitors of first-rate stock."

There can be no question, that a horse's action is improved by proper training. "Form is beauty—action is superiority." It therefore follows, if we accept this axiom, that brood mares possessing the right action, are much more desirable for the stud than those which are devoid of it, and the proper action can only be acquired by a correct system of training. The young mare, though she may have attained her full size, is comparatively untrained; hence she lacks one of the chief requisites for the road and turf—superiority. It is a well-known fact, that action is much more difficult to propagate than form.

FEEDING MEAL TO MILCH COWS.

It was one of John Johnson's hints that "when an animal does not gain in size or weight you lose all the feed it consumes, or, at best gain nothing. When cows are poorly kept, they barely pay their keeping, rendering no profit to the owner." "Acting on this principle," writes a correspondent of the *Country Gentleman* "I have increased the yield of cheese per cow from 300 pounds to 475 pounds, on an average, annually, which is more than 50 per cent, gain. This was done by feeding meal—rather freely, some of my neighbors think. In 1865 I fed 700 pounds of the best corn meal per

cow costing \$14.23 while the average price of cheese as sold was fifteen cents—equal to a net gain of over \$11 per cow in those years. In 1864, I did very much better as cheese sold very high. You will see by this that I think meal does not hurt a cow and as to turning off cows let me say keep the old cow farrow; feed her eight quarts of the best meal daily and milk her and in the Spring she will sell for enough to buy a young cow and will have given milk enough to pay for the meal. And this meal feeding does increase the manure heap which is the farmer's chief source of permanent prosperity; not the least of its advantages, though not included in the figures I have given. If he can get oil cake conveniently he may find that he can do still more at feeding to advantage and ultimately add as much to his income from other sources as has already done to that derived from his sales of cheese.

HOW TO MAKE HENS LAY IN WINTER.

Being an old hand at the business, and I think successful, I wish to give, for the benefit of those interested, my system of feeding poultry to force them. I chop up pretty fine, meat of any kind—baked, roasted or raw, and to about a pound of meat, I put about half a teaspoonful of cayenne pepper. I mix thoroughly, then feed the meat to them, always being careful to have them fed about an hour before, with grain or other food.

If meat is not to be had, then make mush of either corn meal, oat meal, or buckwheat flour, using one teaspoonful for a couple of hens.

Never soak your corn. It is a poor plan. Poultry must have hard feed of some kind, or they will have poor digestion and then of course other diseases. I feed the mixture as much as twice a week. In very cold weather I feed oftener, and have no neighbor who can show more eggs from the same number of hens than I can, neither have they more vigorous, healthy stock.

To still more facilitate laying in hens, keep them from all interference of the cocks. People, always as a rule, keep too many cocks with their hens, which is wrong. Not only in laying do they do badly, but, when raising young chicks, also. Too much interference of Mr. Cuckoo is not good—and he is very efficient.

Old mortar broken up, charred bones, charcoal, &c., are very good, especially for winter.—*Cornet-ponden of Western Farmer.*

POTATOES FOR MILCH COWS.

Mr R. A. Hunt, of Euclid Ohio, gives the following result of an experiment he made in feeding carrots and potatoes to a milch cow. The cow to which the roots were given, had previously the same treatment each day, so far as care and other feed were concerned while the test was being made having nothing in addition to the roots but dry hay and water. While thirty-six quarts of carrots were fed daily thirty-two pounds of milk were received in return; and while the same quantity of carrots and potatoes equal parts were fed thirty-six pounds of milk were given; and when potatoes alone were given, for 9 pounds of milk were received.

The roots were cut and fed in messes of twelve quarts each three times per day and alternate changes made so that a correct estimate might be

set upon the different roots as milk producers. Mr. Hunt believes potatoes to be a paying crop when raised for feeding milch cows alone.

HOLLOW HORN (*Horn Ail*).

In a recent number of the *Southern Farmer* we find the following: "Hollow horn in cattle, it is said, may be cured by the following prescription: Take two tablespoonfuls of ground mustard (the finer the better); mix with sharp vinegar until the mustard is as thick as sweet cream, and put half in each ear, working it as far up the ear as can conveniently be done. If the animal does not eat in three hours, give another dose."

If it had been said that "if the animal did not die in three hours stop," etc., etc., we might have let this case pass unnoticed. But when we see the barbarous practice recommended continued, we can not help suggesting that both the "doctors" and the man that publishes such stuff ought to have a little—just a little—of this mustard stuffing applied in their ears, as far in as can be conveniently done, for we imagine both worthies must be more or less hollow in their heads. We would recommend this as a subject to be considered by the societies for the prevention of cruelty to animals, and especially to the memory of the great philanthropist, Mr. George T. Angell, whose presence, it appears, is badly needed in Dixie.—*Pacific Farmer.*

COLORED CHEESE.

Among the advantages of not coloring cheese, an English authority thus states:

1. An uncolored cheese will ripen sooner and be fit for use.

2. No intelligent dairy farmer, either of Cheshire or Somersetshire, has on his table colored cheese. They always prefer one uncolored, as richer and higher in flavor.

3. It is curious to remark no country except Great Britain colors cheese. The only uncolored cheese is the Stilton, which is one of the best flavored and richest cheeses. We find no colored cheeses in Holland; none in Switzerland, where Gruyere is made; none in Lombardy, the country of the Parmesan; nor in France, which produces the delicious Rockfort cheese. It greatly behooves our dairy farmers to do all they can to improve their Cheddar, and to prevent it being lowered in value in the market by the superiority of the American. And as it is ascertained that coloring cheese affects its quality and richness, surely this ought to be a chief reason to abandon it, and bring into the market the best made Cheddar uncolored, to cope with that which comes from America.

SWEENEY.

I saw an inquiry for the cure of this disease. I have found careful use the best cure. I had a fine bay mare badly sweened by hard usage in the hands of an incompetent teamster. Quack doctors offered to cure her by incisions and various applications. I rejected all, procured a different harness, directed only the lightest work and her constantly and carefully taken care of and gently used and she was entirely well in a year, the depression in the shoulder caused by the disease filling up. Careful nursing is generally better than all medicine.

A FARMER.

LIVE STOCK GLEANINGS.

Boiled potatoes and boiled peas mashed together, and fed with sour milk, it is said, will put flesh on hogs faster than corn.

A Main paper asserts that "Nathaniel Stetson, of Durham, recently lost a valuable cow by having swallowed a darning needle."

A Missouri newspaper claims that the hogs of that State are so fat, that, in order to find out where their heads are, it is necessary to make them squeal and then judge by the sound.

The *Farmers' (Ky.) Home Journal* states that the best age of cattle for grazing, is that of three and four years. Let such ages be selected of good high grade or throughbred, and liberally fed, and the result we will have no reason to be dissatisfied with.

The New York *Tribune* says:—"If cattle are well fed with roots and some meal, the grubs that burrow under their hide and give them so much uneasiness, will not grow. They are most annoying to poor animals which have only common hay. A rich and varied diet is the best preventative of many ailments, as, saith Scripture, "to him that hath shall be given; and from him that hath not shall be taken even that he hath."

A farmer friend at Rolling Prairie, Indiana, writes as follows:—"I have a little sheep news for you. I had fifty-six sheep, out of one hundred and eighty-six, killed and wounded in one night by dogs; damage assessed at one hundred and eighty-one dollars."

The *Carolina Farmer* says North Carolina is well adapted to sheep husbandry, but owing to the insecurity of flocks from destruction and injury by dogs, very many persons are prevented from enlarging in this most profitable branch of stock raising, and those already engaged in it are prevented from enlarging their operations. Therefore, it suggests that everybody in the State sign petitions entreating the general Assembly to lay such taxes as shall greatly diminish the number of these destructive curs.

J. H. Wallace, furnishes the *Country Gentleman* with facts of some interest, relative to breeding from stallions of various ages. These show that celebrated horses have been raised, that were by stallions from twenty to twenty-seven years old, while equally famous horses have been produced by stallions only three and four years old. The writer concludes that the question of age is not so important as that of condition.

The Gonzales (Texas) *Inquirer* says the Kansas cattle trade next year will not be confined to beefs, as heretofore, but will embrace stock cattle of every description, such as cows, calves, yearlings etc. The *Inquirer* reports that the ruling price for beef

cattle is \$12 per head for first class, and \$10 for second. In the counties west of Gonzales, the stock-raisers are demanding \$15 for choice beefs, but drovers are reluctant.

A farmer in Massachusetts cut an acre of red-top and clover, June 19th, 1868 and stored the hay by itself. On the first of March following, he commenced feeding this hay to ten cows, which had been kept previously on hay of the same variety cut after the middle of July. The early cut hay spent quite as well as the latter cut, and the immediate increase in flow of milk arising from the use of the former, amounting to a daily average of one quart per cow.

A new process for drying roots for feeding stock, has been patented in England. The method consists in applying heat in such a way as to partially cook and dry them without extracting any of the nourishing qualities. It is claimed that the bulk of food being thus reduced, cattle and sheep will consume more nourishment and fatten more rapidly. Another advantage would be less liability to destruction by frost. But it will be a long time before the above-named patent will command a very high price in this part of the country. Corn is a much surer crop than roots more convenient to handle, and affords more fattening material per acre.

The *London Home* recommends salt for swine. It says swine are such greedy feeders that not a few farmers pay very little attention to their feeding. The swill-barrel is often very little better than a sink, and the poor hogs are expected to eat anything and everything which is refused by the other animals, human and brute alike. This short-sighted treatment however, works its own cure, or punishment rather, for swine thus treated make poor pork, and often die before killing-time. Others who are particular about feeding their pigs forget to supply them with salt, as they do other animals. They require to be salted, however, just as much as cattle, horses, or sheep, and suffer as much when neglected as any of these animals. If the food be not regularly salted, there should be a trough or box in every sty in which salt may be deposited regularly for the use of the animals. Salting the food judiciously would be much the best way.

An Ohio hog raiser advocates the system of pasturing on clover during the summer. He presents, as the advantage of this plan, the statement that an acre of ground in clover will pasture five hogs four months, and that it will take the corn from half an acre to feed them the same time. The cultivation of the corn he counts equal to the rest of the other half-acre. He further claims that hogs pastured on clover are in far better condition than if fed on corn, as they are better framed, healthier, and eat better, and also states that the land is enriched by the clover pasturing.

In the year 1877 a speckled ewe was brought from Shetland and given to Mr. Buist, of Ormiston, who, unwilling to kill what he received as a gift, has kept it ever since. This ewe, which died recently, was twenty-eight years old. It may safely be said of it, without the risk of contradiction, that it was the oldest sheep in the British Islands.

The Garden.

JAPAN LILIES.

Japan has sent our florists many beautiful flowers, and one of the very finest is the new Lily, herewith illustrated,—*Lilium Acatum*. The gift of this variety, and *Lilium Leuifolium*, introduced a few

years ago has laid us under everlasting obligations to that land of beautiful flowers and queer people.

These have been found on trial to endure our winters even better than our native lilies, and to flourish in greater variety of soils. They surpass all others in beauty, and are most deliciously fragrant.

To grow these beautiful flowers in perfection the ground should be dug fully eighteen inches deep, and enriched with surface soil from the woods that



has been well mixed with plenty of coarse sand and old—not less than two years old—well rotted manure. The bulbs should be set five inches below the surface, and remain for several years without being disturbed.

Our engraving shows a bloom of the *Lilium Acatum* which gives a good idea of the shape of the leaves and flowers, though much reduced in size. The flower from which the drawing was taken, measured about nine inches across, and many will

measure ten or twelve inches across without stretching the petals. It is perfectly hardy, and grows from two to four feet high, each stem budding from four to twelve perfect flowers. Messrs. James Fleming & Co.: of Toronto have imported a large supply of these choice bulbs direct from Japan, which have arrived in good order, and will be offered among their spring novelties. They may also be had, we believe, of all our leading seedsmen and florists.

HOW TO MAKE MUSHROOM BEDS.

Mr. Meehan, editor of the *Gardener's Monthly*, who has had much experience in the cultivation of mushrooms, gives the following rather discouraging directions for preparing a bed :

"It is the easiest thing in the world for one who knows how to raise them, and yet simple as it is, it is one of the hardest things to teach to another. The main principle is that the temperature of the air and that of the earth must be nearly the same or they cannot be grown. There must also be a correspondence between the moisture in the atmosphere and that in the soil. Temperature required is between 55 and 65 deg., and the atmospheric moisture just such that a piece of paper would never get dry, or yet so wet that one could not write on it with ink without its running too much. This is the best idea we can give of the conditions necessary. It requires intellect to comprehend the conditions, simple as they are; for we have never seen any one who never saw a mushroom bed, who could grow them from reading alone.

"The best material for forming the bed, is the droppings of out-fed horses. These should be collected every day and placed in a convenient shed close by the stable, kept dry and turned over every few days to keep from heating too strongly. When as much as is required to make a bed has been collected, lay it about eighteen inches thick in any place where the above condition can be secured. The 'spawn' can be bought in the large seed stores. Break it in pieces the size of walnuts, place on the bed a foot apart, and then on this about an inch of any good garden earth, beaten firm. Water with water at the temperature above given, and nothing more is necessary, in order to have plenty of mushrooms, but to beware of any change in the conditions.

"There are many plans by which each can carry out these principles. When a boy, our 'pocket money' came from the privilege of raising what mushrooms we could in an old cellar under a too house. It succeeded admirably; and big fat fellows often sent us on our way to market rejoicing in our success. In France they roof over old stone quarries, and make them into caves, where they are grown by the acre and almost all Europe and America supplied in canned mushrooms therefrom. We are often astonished that more is not done with it than is. 'No bugs, worms, beetles, aphides, birds, heats, colds, rains, mildews or moulds, to contend with—nothing required but strong common sense on one hand and a pocket full of money returns on the other.'

ENGLISH WATER-CRESS GROWN IN A HOT BED.

A correspondent in the *Gardener's Monthly* gives the following novel method of growing water-cress, which will certainly be new to most readers, as it is to us. It is, at any rate, worth the trial, as the flavor of this plant is pleasing to most palates. That there is a great difference in flavor between that grown in a fine running stream, and where it is all but dry, everybody who knows anything about the plant will readily admit. It is possible

that the exciting atmosphere of a hot bed may, in a measure, have the same effect on this plant that running water does—that is, render the plant more crisp, and less peppery in flavor :

"Permit me to recommend through your valuable *Monthly* the most wholesome and most productive of all salads grown in winter and in spring, and yet the cultivation of it is little known, and almost entirely neglected by those who do know. This water-cress is a native of Great Britain, and is found wild in the small streams more, or less through the whole country, and is cultivated on a large scale around London. Although this cress is considered amphibious it thrives better in an ordinary hot bed, from October until April, than it will at any season growing in its natural element, exposed to the climate. I find three sash ample for a moderate family from October until April, and requires no re-planting. I whitewash the glass, and give very little air except when raining, which saves watering, which it requires at least once a week. A full crop can be cut every three weeks. I generally cut one-third of a sash each time, so always get a succession. About the first of April a quantity of plants should be transferred to some cool, wet place, where they will live during summer, and be ready for the hot bed in the fall.

WINTER WINDOW GARDENING.

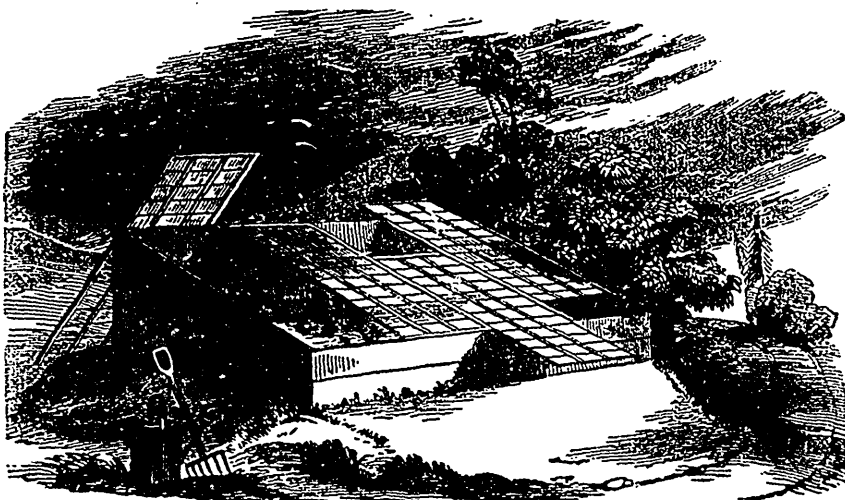
Use, for this purpose, only such plants as have been prepared for winter blossoming by giving them two or three months' previous rest. It is altogether too much to expect that plants which have been blooming all summer should be covered with flowers in winter also. Give them plenty of room, so that the air and light may have free access. It is a great mistake to crowd them close together. There is more pleasure in a half-dozen well-grown plants than in any number of poor, weakly, drawn-up things. Keep the temperature as uniform as may be, letting it fall as daylight fades, so that the night temperature shall be from fifteen to twenty degrees cooler than during the day. It is very commonly the case that, for a part of the night at least, this is reversed, and by drawing the curtains and stirring the fire the temperature is increased. Plants should rest at night, which they cannot do unless the temperature be decreased. When the weather will admit of it, give the plants fresh air, but never let it blow in directly upon them. To sit in a draught is as bad for plants as for human beings. Dropping the top sash a little way: less or more, according to the warmth of the weather without, is the most convenient method. Keep them clean, removing the dust from the leaves by a gentle shower-bath of tepid water from a fine-rosed watering-pot, and by gathering all the dead leaves and all the insects that appear.—*Exchange*.

A writer in the *Massachusetts Ploughman* says that trees bent toward the east, and that in transplanting them, care should be taken to set them in the same position relative to the points of the compass that they had before transplanting. He thinks a neglect to do so may account for the great number of stunted or dead trees that are found among those transplanted. It may be right to say that the most experienced nurserymen and orchardists reject this theory.

HOT BEDS

While to the professional, or market gardener, the hot bed is an essential adjunct, to the family garden it is a very convenient appendage; enabling one to produce the choice products of the garden several weeks earlier than they can be had otherwise. Many are deterred from constructing a hot bed from an erroneous impression that the trouble and expense are greater than the advantage to be derived therefrom. Necessarily the expense may not be very large, as a cheaply constructed frame and good glazed sash, if properly taken care of, are the cheapest, as they will last quite a number of years, and the outlay of a few dollars to start with will enable one to have all the advantages to be derived from a good hot bed. One other objection is

18 inches deep. Fill this and raise it about a foot above the surface with the manure, and on this place the frame and bank up with earth, covering the manure five or six inches or more, outside the frame; place the sash on and let the manure steam. When the heat has subsided to about 90°—it will go to 100° or more—spread on five or six inches of fine rich garden mould, well filled with vegetable matter, and in this, after warming up a few hours, sow your seed in drills from front to back side of the bed. The bed should face the south to receive the full benefit of the sun's rays. Beginners are too apt to sow their seed in the hot beds before the heat begins to subside, and thus lose them, and from the failure thus induced, become discouraged; whereas had they hurried *more slowly*, success would have attended their efforts.



HOT BED.

often urged—the amount of manure needed for a bed. This need be no objection, for the manure may be taken for other purposes after being used in the bed, and being well decomposed is admirably fitted for later crops. Frames constructed of good plank, and as often recommended with iron hoops on the ends of the sides, to pass through mortices in end pieces at the corners, and fastened by inserting keys through the loops, will make the most convenient ones, as they may be most readily taken apart, when through with the season, and packed away so as to occupy but little space. Sash of three by six feet, well glazed and painted, are about as handy as any size and as frequently used by market gardeners as any. The reader will have no trouble in understanding the principle of a hot bed with grass as shown by the above cut. In constructing the bed it is preferable to excavate a pit about a foot larger on every side than the frame, and some

We have stated that manure for heating is needed, this is of the greatest importance, and also that it should be of lasting material that the heat may be continued as long as possible. Horse stable manure, plentifully supplied with strawy litter, is commonly used, as this is of a quicker nature than other animal manure. This should be thrown into a heap under cover, as thrown from the stall, a few days before being used—having one half its bulk in leaves mixed with it and firmly trod. In the absence, one-half the quantity of cow manure, well littered, may be used to make it compact. In a few days it will begin to heat, which is known by the steam rising. When well steaming throw it over, mixing it well and keep it trim, to prevent having frozen lumps, etc. When used in the bed, spread it evenly over the whole surface, beating it down with the fork well, and if lightly trod to pack and keep even, no harm is done. The object is to keep an even

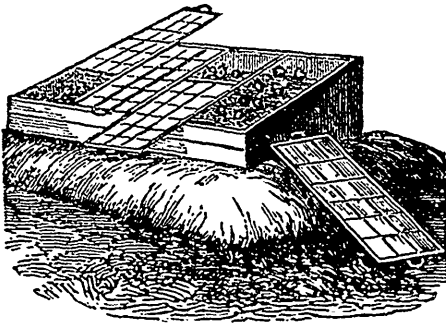
surface when the bed settles, as it will after settling awhile.

CARE AFTER SOWING THE SEED.

Any one who is indisposed to give some time, and take a little trouble in order to enjoy the luxuries that may be derived from a well-managed hot bed, had better not meddle with one, for we may not expect to enjoy the luxuries of life without care and trouble. Especially where we turn nature and her laws from their course by so direct an interference, more care is required than when less interfered with.

The bed will need protection from the heat of the sun when it shines bright in mid-day, by sliding the sash to give air, or in shading partially; also protection during the night till into May, in this latitude, by covering with light shutters or straw mats. It will also need to be looked to, that it never gets dry. The water used should be slightly warmed and applied from a watering pot with a fine rose sprinkler. A neglect for an hour of any one of these little things may result in the entire destruction of the plants that have been started. By failing to give air or shade, when the sun is hot and clear, the concentrated rays will often burn and ruin the plants. Hence, in clear, still days it is often advisable to remove the sash entire for an hour or two in the middle of the day. If the wind blows, with a bright sun, slide the sash down a few inches to give air. While guarding against the effects of heat, don't forget the frost, least some cold snap may leave your tender plants or vegetables with the chills, or you find them frozen in the early morning.

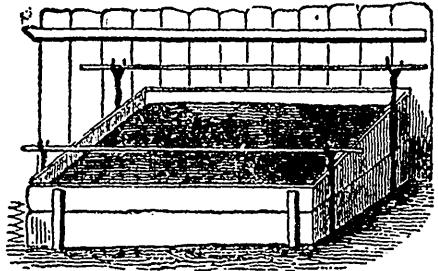
The large variety of plants that the hot bed is useful in starting, or forwarding early in the season, needs no repetition here; but for all that require a long season, it is a most indispensable, as well as for those early spring luxuries which can be had in no other way as early. March is the proper time for making up the hot bed, as a general thing in this latitude.



SIMPLE GLASS HOT BED.

The above cut will give an idea of the most simple form of the glass hot bed. To save digging, it

may be placed directly upon the ground. Inside of the frame, the manure must be sufficiently thick to generate the necessary heat, over which there must, of course, be a layer of soil.



A CHEAP HOT BED WITHOUT GLASS.

This is very simple, and may be made by any one in a few hours. Some old boards and a few stakes are all the material needed for the frame-work. It should have a southern exposure; the side of some building is the best position, as it furnishes protection from the west winds, and adds to the intensity of the sun's rays by reflection. The bed should be eighteen inches deep at the front and two feet at the back. Fill to within six inches of the top with fresh stable manure, then to the top with good soil; a sandy loam is best. Throw an old blanket over the poles at night if there is the least danger of frost, but don't fail to remove it in the morning. By starting in the hot bed, two or three weeks may be gained in the growth of plants.

FLORAL WINDOW BOXES.

What adds so much to the ornamental appearance of a room as flowers? They can be procured with little expense, and the few moments required each day in watering and careful training and pruning, are amply repaid by the sweet fragrance and rich bloom. A window box can be very easily and cheaply made of wood, and fitted to the window-sill of a south or east window, which can be made very attractive. Ours is made of pine boards, is about five inches deep, and covered with wall paper; it would be better painted, or still better made of zinc and neatly painted. The more expensive are made of potters' ware or of tile. Good rich garden soil is suitable for most plants.

A plant of the German Ivy is very pretty to place at either end of the box, and can be trained up the window casing and festooned over the top of a window. The Kenilworth ivy is useful as a border plant on the inner edge of the box, and allowed to trail down over the sides, but it will require severe pruning, or it will cover and crowd out other plants. For the centre, a few plants of verbena, geraniums or fuchsias, or the more common, but not less beautiful pansies, double stocks, carnations, flowered balsams and wall-flowers. There is also the English daisy (*Bellis perenni*)

"Wee, modest, crimson-tipped flower"

Be careful not to get too many plants; two or

these are sufficient, and will grow more luxuriantly than if crowded. Many other plants can be successfully cultivated in the same manner. I have mentioned only those which are in reach of all.

A morning glory came up self-sown in our window box, and was allowed to grow, only taking care to pinch off the ends of the shoots occasionally, and common as it is, it has given us much pleasure. The petunia can be grown as a house-plant, and trained on a trellis, presents a much prettier appearance than in the garden. A very neat trellis may be made of old hoops, forming pieces of them into three circles, seven, five and three inches in diameter, fastening each circle firmly with the clasp taken from the hoop. This can easily be done with the aid of a knife and a pair of pincers. Then a fine stick, two feet long, nicely polished, and sharpened at one end, must be put through the circles, first under one side of the smallest, then over the same side of the one next in size, then under the other side of the first, etc., weaving them in and securely fastening the upper side of the largest one with a little wire staple.

A very neat hanging basket may also be made of old hoops and broom wire, using these for a form and lining with moss. Some pretty trailing plants, inside, trained to hang over the sides, gives it a very agreeable effect. I have one in which, after lining half way with moss, I place a row of Kenilworth ivy; then filling up with moss, a geranium is placed on the top. These baskets require to be copiously watered. I have found the best way to be to suspend the basket in about two inches of water, allowing the soil to absorb the moisture, which it will do very readily.—*Cor. in Country Gentleman.*

STARTING PLANTS IN THE HOUSE.

Before long many of our readers will be thinking about sowing seeds of tomatoes, egg-plants, and the like, so that they may get them forward early, and have the comfort of them in advance of the general public. Perhaps a few suggestions that may help them to a more full realization of their wishes will be acceptable to most of our readers.

And first a word of caution. In the great eagerness to get the plants forward very early, it is a common mistake to begin too soon. In our climate it is not generally safe to plant out tomato plants in the open ground before the tenth of June, lest they be caught by some late nipping frost, and the care and labor of weeks be cut down in a single night. It will be found, then, to be quite early enough to sow the seed about the twentieth of March, which is some eighty days before they can be planted out, and quite enough to make fine, large, strong plants.

The seed should be sown in light friable soil, and placed in some sunny window. If there be such a window in the kitchen it will be the very best room in the house for the box of seeds, for the reason that the air is more full of moisture than that of any other. In a few days the seeds will begin to grow, and the plants in all probability stand too thick together. They should be carefully thinned out, so as to give each plant plenty of room without crowding its neighbor.

The plants may be allowed to remain in the box until the weather will admit of their being removed to a cold frame, where they can be planted out in

the soil, or potted off into separate pots, and protected from chilly storms and night frosts by a few boards, and freely exposed to the sun and air in pleasant weather.

A box may be very readily divided into compartments with strips of common past-board, and one plant be set in each separate division. This will be found very convenient in transplanting, as each plant can be taken out with its own ball of earth about the roots, without in the least disturbing its growth.

Water when the soil needs water, but not oftener, and use tepid water. Give plenty of light, and when the weather is mild enough, set the box out for a few hours in the open air on the sunny side of the house, until the plants can be safely placed in the cold frame.

The cold frame is merely a wall of boards, such as is placed on a hotbed to protect the planes, which may be placed in some warm, sunny spot, and be covered with boards when needed to protect the plants from snow or cold.

In our climate the weather is usually mild enough to allow of the plants being placed in such a frame about the first of May, and if they have been freely exposed to light and air, they will be stocky and healthy. Here they will continue to grow, not rapidly, but gradually increasing in size and strength, until the weather will admit of their being placed in the open ground. Treated in this way, any one of them will be worth a hundred long-drawn, puny, sickly things that have been grown in heat and crowd.—*Globe.*

THE CHINESE AZALIA.

This is one of our most valuable plants for greenhouse or plant cabinet, because of the hardihood of its constitution, and the great beauty and profusion of its flowers. It will endure fifteen degrees of frost in a dry atmosphere, and in a moist one the thermometer may rise as high as one hundred without injuring the plant. If frozen, however, it should be kept from the sunlight, while at all other times it not only bears, but requires, full exposure to the rays of the sun—an abundance of sunlight being one of the great secrets of success.

It thrives best in a soil composed of sand (pure river or lake sand), loam and leaf mould, in equal proportions. The pots should be supplied with abundant drainage, say one-third filled with broken pieces of crocks, over which is laid a little moss, to prevent the soil from working down among the fragments of crocks and choking the drainage. It needs a regular supply of water—if exposed to the sun, as often as twice a day—and a syringing overhead at evening. If the plants are allowed to get very dry, they will be very sure to drop their blossom buds. After the flowering is over, the seed vessels should be all cut off, so that the vigor of the plant may be directed to preparation for next year's bloom.—*Globe.*

GROWING VIOLETS IN THE HOUSE.

Another correspondent states he succeeds in growing the sweet violet in windows, by keeping them as near the glass as possible, and in a room not hotter than 45 or 50 degrees. He also says:—
Another fact, I have learned that a manure made of rotten wood is a capital fertilizer for

them. Once thought as shady places were the natural places where violets grow, and rotten wood would be a good thing in the soil. But they soon get sick of it; but the liquid steeped wood does not seem to have the same effect; on the other hand a lively green is the result."

WINTER KILLING.—It is generally supposed that the extreme cold weather of winter kills many trees, shrubs and plants, that are not perfectly hardy.—This is not strictly true, for when such things are so planted as to be sheltered from the rays of the sun, they will pass through all the cold of even the hardest winter, without injury. The fact is the alternate freezing and thawing is what does the mischief. We have seen the English and Irish Ivy, evergreen climbing plants, withstand the rigors of winter perfectly on the north side of a building where the sun did not shine, while the same variety of plant was nearly destroyed in a sheltered corner on the south side, when exposed to the sun. What is true of those plants is true of a great variety of plants, and the lesson we should learn from such facts is to protect all such things by screening them from the winter's sun, so as that they will not thaw out quickly, as they will if left unsheltered. This rule holds good in regard to strawberry plants, pinks, and many other plants that are left in the ground all winter.

GARDEN GLEANINGS

E. T. Thompson, of Lansing, Mich., gives as his opinion, based on experience, that the best way to destroy the curculio and the peach borer is to plow or spade up the soil around the tree as far as the branches extend; just before freezing time, turn in the store hogs and let them do their work thoroughly. Sow some grain around the trees to induce them to work; turn in the chickens alternately with the hogs.

The *Canada Farmer* says that Mr. P. C. Dempsey, of Prince Edward county, reports two very valuable and perfectly hardy varieties of apples, which originated in that county. The one he calls "Rednor's Seedling" is of medium to large size, form oblong, stem short, color green, becoming yellow at maturity, with red stripes on the sunny side. The other he calls the "Albury." This apple is rather large, ovate-conical; color yellow, with a dull brown in the sun.

The *Rural World* says that the bark of the linden or bass-wood tree is prepared for tying grape-vines, by peeling, tying in bundles, and putting in a pool of water. Let it be in the water until the inside becomes loose, so that it will come off in pieces like ribbon; then take it out, peel off all that is loose, tie up the second time, put back in the water, let it stay until it becomes loose again, strip off and throw the outside away. The paw-paw managed in the same way is better than the linden.

A correspondent of the American Institute Farmers' Club stated that he had a pear orchard in which the trees were too close—ten feet each way and every fourth one a standard—and asked if he could take them up safely at their present age (four years) and reset. Mr. P. T. Quin said, "Yes, it is not difficult to move pear trees, even ten years old,

provided the work be properly done. Cut back the tops and spare all the roots possible. Let the spade in, always keeping the edge towards the stem of the tree—at least, four feet might be better if the roots run far.

The *Gardeners' Monthly* says that the weather or soil can scarcely be too dry for grapes, and that this year while even corn died out on the hill sides, the grapes flourished gloriously. Many who had but flat ground ledged it up and set their grapes on these artificial elevations. These have had their reward. But there are many who are not yet convinced. They contend that one swallow does not make a Summer and that the results of one dry season proves nothing. Surely the late unprecedented dry season and the magnificent crop of grapes ought to satisfy the most skeptical.

In answer to a correspondent, the *New England Farmer* says the grape vine can be grafted, though it is not often resorted to. The grafting is done near the root, as follows:—Wait, in the spring, until the vine has pushed its first leaves to the size of a dime; clear the earth away from the stem, and graft the same as an apple-grafting. Cover with a good body of grafting clay, crowded close to the wood, and then press the earth carefully but firmly around, leaving but one eye of the cion above the soil. The cion should have three or four eyes or buds, and a little of two-year-old wood at the bottom of the cutting.

The *Rural New Yorker* says that onions are often injured by keeping them in too warm a place. They will seldom be injured by frost if kept in the dark and in tight barrels or boxes where not subjected to frequent changes of temperature. It is the alternate freezings and thawings that destroy them; and if placed in a position where they will remain frozen all winter, and then thawed out slowly and in a dark place, no considerable injury would result from this apparently harsh treatment. Onions should always be stored in the coolest part of the cellar, or put in chaff and set in the barn or some out-house.

Messrs. H. Doulton & Co., of Lambeth, England, the eminent earthen ware manufacturers, have brought out a new form of border-edging tile for gardens which is named the "Chatsworth Conduit Edging Tile." This promises to answer several purposes such as affording an ornamental edging, a drain tile, and a collector of the best kind of water for plants. This tile is the joint contrivance of Mr. Speed, the Duke of Devonshire's Gardener at Chatsworth, and W. P. Ayres, of Nottingham. Mr. Speed in noticing after a storm that a quantity of water stood inconveniently upon a garden walk, and in a place where water was always scarce, thought—"Why could not that water and all the water that falls upon the walks, be stored in tanks underneath them, ready for use when wanted?" The result was the invention of the Conduit Tile.

A correspondent of the *Country Gentleman* says: "We have never wintered by suspending from the roots any scented geraniums, excepting the nutmeg species; these lived well, and perhaps the more delicate varieties will do the same. *Salvia* plants may possibly bloom in Winter if placed in a warm situation, but its roots are usually treated like Dahlias as they belong to the tuberous class which require rest during some months of the year.

Editorial.

AMERICAN BEE-KEEPERS' ASSOCIATION.

In our last we chronicled the formation and proceedings of the "North American Bee-Keepers' Association," and we have now to record the organization and doings of another Association well nigh identical in name and character with its predecessor. Owing partly to the misunderstandings and jealousies of Patent Right bee-men, and partly to that rivalry between East and West which crops out on every opportunity, a convention of bee-keepers was called, to meet at Cincinnati February 8th and 9th, in addition to the one called to meet at Indianapolis December 21st and 22nd. Influential names were appended to both calls. The Indianapolis convention met, was largely attended, had an interesting and profitable session, and issued, as our readers are already aware, in the formation of a permanent Association of bee-keepers. There was no power that could interfere to prevent the other convention from assembling, and it was deemed well that as many as possible of those who had taken a leading part in the gathering at Indianapolis should put in an appearance at Cincinnati also, and use their best endeavors to secure the consolidation of the entire apianian fraternity of North America into one body. Having been somewhat prominently engaged in the proceedings at Indianapolis, and elected first vice-president of the Association formed there, we were strongly urged, and felt a sort of obligation, to attend the Cincinnati meeting, and do what we could for union. Hence we went with the determination to work as actively and earnestly for the success of the second convention as we had done for the first.

At 2 p. m., February 8th, the convention was called to order, in the Sons of Temperance Hall. A goodly number of persons were present, and although the gathering was not so large as that at Indianapolis, it was evident that a respectable representation of bee-keepers was in attendance. An organization was effected by appointing Rev. W. F. Clarke, of Canada, temporary President, and Gen. D. L. Adair, of Kentucky, Secretary. After some discussion on the subject of union with the already existing Association, it was concluded to adopt a constitution and perfect an organization so that the bodies might unite on an even footing at next meeting.

The following is the

CONSTITUTION:

ARTICLE 1. This Association shall be known as the American Bee-Keepers' Association, and shall meet annually. Its object shall be to promote the interests of bee culture.

ART. 2. The officers of this Association shall be a President and Vice-President from each State, Territory, and Province represented; a Secretary, two Assistant Secretaries, and Treasurer, whose duties shall be those usually performed by such officers, who shall be elected by ballot, and hold their offices for one year, or until their successors shall be elected.

ART. 3. The President, Secretaries and Treasurer shall constitute an Executive Committee.

ART. 4. Any person may become a member by giving his or her name to the Secretary.

ART. 5. This Association may, from time to time, elect suitable persons as honorary members.

ART. 6. No member shall be entitled to the floor more than five minutes in the discussion of any motion, resolution or petition without the consent of the Association.

ART. 7. All committees shall be elected by plurality vote, except by special resolution.

ART. 8. This constitution may be amended at any annual meeting by a two-thirds vote of all the members in attendance.

A committee of five was appointed to go round the room and obtain signers to the constitution.

ELECTION OF OFFICERS.

The Association then proceeded to the election of officers.

Mr. King, of New York, nominated the Rev. L. L. Langstroth, of Oxford, Ohio, for the office of President. There were no opposing candidates. The Rev. L. L. Langstroth, was therefore elected unanimously.

Mr. Langstroth said that as a compliment he would accept the position, but only on the condition that none of the active duties of the office devolve upon him, as his health would not allow him to undertake them. The convention signified its unanimous consent.

Balloting for Secretary was declared next in order, when the Rev. H. A. King of New York, was elected Secretary on the first ballot.

Vice-Presidents were chosen as follows: New York, the Rev. E. Van Slyke; Kentucky, H. Nesbit; Missouri, L. C. Waite; Iowa Mrs. E. S. Tupper; Wisconsin, A. H. Hart; Illinois, L. C. Francis; Ont. Canada, the Rev. W. F. Clarke; New Jersey, E. J. Peck; Pennsylvania, Seth Hoagland; Ohio, A. Benedict; Tennessee, Dr. T. B. Hamlin; Kansas, L. J. Dallas; Minnesota, A. D. Seward; Michigan, A. F. Moon; Indiana, Dr. John F. Wright. Assistant Secretaries were next elected. Two were to be chosen. The election was as follows: D. L. Adair, of Kentucky, and L. C. Waite, of Missouri.

The Treasurer was next chosen. Mr. N. C. Mitchell, of Indiana, was elected.

The Chairman announced the Association organized, and gave way to the President, the Rev. L. L. Langstroth, who suggested that the Vice-President from New York, the Rev. E. Van Slyke should preside.

Mr. Van Slyke took the chair, and announced the convention ready for business.

A STEP FOR UNION.

Mr. Clarke, the retiring temporary President, offered the following resolution, which was unanimously adopted:

Resolved, That this Association, when it adjourns, shall adjourn to meet at Cleveland, O. at 9 a. m., on the first Wednesday in December, 1877, at the same time and place as the North American Bee-Keepers' Association, when provided the other organization shall instruct its officers to do the same, the officers of this body shall resign, with a view of there and then consolidating both Associations into one."

On motion of Mr. Peck, amended by Mr. Clarke, Mr. King, Mr. Peck and Mr. Otis were appointed a committee to confer with a similar committee appointed by the North American Bee-Keepers' Association, with a view to a union of that with this organization, and report the same to this Association.

EVENING SESSION.

The Association met at half-past seven o'clock, Vice-President Van Slyke, of New York, in the chair.

The following committee, to report an order of business was appointed: Messrs. Clarke, Peck, Moon, Baldwin and Ladd. While the committee was out, some one suggested as a matter for discussion the Italian bee. Several persons were called upon, and all, with one consent, began to make excuses. Mr. Waite, of St. Louis, Missouri, was suggested. Mr. Waite is deaf and had to be waited on by some one who went to him. He arose and read an essay on bee culture, written in a very attractive style and abounding in humor, as well as in excellent practical hints. He said that in the management of bees no one must ever show the white feather. They did not like drunken breath. He opposed the use of tobacco smoke as injurious, and recommended the use of the smoke of rags or rotten wood instead. Some farmers, he said, gave their bees all the inattention they could. For such farmers, or beekeepers, he thanked God for the moth. There were an abundance of hives patented, and but few of them worth having. He favored large boxes as best adapted to having large supplies of surplus honey laid up. He gave, in detail, hints for the care of bees during all seasons of the year. His address, or rather essay, was warmly received, and the Association tendered him its thanks.

Mr. Clarke, Chairman of the Committee of Business, submitted the following order of business, which was accepted:

1. The most successful winter management of bees.
2. The best method of artificial swarming.
3. How far is it wise to prevent swarming?
4. Are hybrids better than pure Italians?
5. Volunteer topics.

THE FIRST TOPIC

came up for discussion. Mr. Hosmer, of Minn., said his experience was that small swarms wintered better indoors than large ones. He wintered in a cellar well ventilated. He did not want more than a quart of bees to a stock. He preserved queen bees and divided his stocks. He fed them about five pounds of crushed sugar (to each stock) per year, commencing in March.

Dr. Bohrer, of Ind., said that a large colony and a small colony would not winter well together in the same room, owing to large colonies generating an undue amount of animal heat. The small colonies, under such circumstances, were apt to contract disease. He would have a special repository for small colonies, where the thermometer might be permitted to range about 45° or 50°, while between 32 and 40 degrees Fahrenheit was the temperature favorable for large colonies. He would use an old blanket in covering hives, and corn cobs for the top of them to prevent the accumulation of moisture. He would not have a hive more than twelve inches deep. He believed in perfect neatness in his bee house. He was an enemy to spiders.

Question by a delegate—Would not spiderwebs be a good moth trap?

Dr. Bohrer—The best moth trap is a strong colony of bees. [Laughter.]

Mr. Gallup was hostile to tall hives. They became too hot at the top.

Mr. Gallup was subjected to a running fire of questions. He used no honey board on his large

hives. He put his large colonies near the floor in the wintering house, and the small ones near the top or roof.

Mr. Dallas, of Kansas, thought the indoor method of wintering best. He would have a deep, well-drained trench upon dry ground. Over this he would build a double walled house, the interstices between the walls filled with saw dust, the house provided with ventilators and double doors. In this he would put the bees after equalizing the stocks. Care must be taken to protect from dampness and too great a change of temperature in the ventilation from opening the door or the special appliances for the purpose.

Mr. King, of New York, said he called a hive ten and a half inches in depth, as spoken of by Mr. Gallup, a deep one. He recommended the construction of a winter bee house, so as to answer the purpose of handling bees, taking honey from them, &c.

Dr. Wright, of Indiana, said he had found benefit to diseased swarms from putting a cloth over the top of the hive and placing fresh charcoal pulverized upon it. This absorbed impurities and improved the health of the bees.

Mr. Potter, of Minnesota, detailed an account of a journey north in his State into the Red river country. He thought he had got away from the bees, as he had inquired for a hundred miles for them, and found none: but at the head waters of the Red river of the North he found an Indian who said he had found bees near there [it was 200 miles north of St. Paul], and taken two pailfuls of honey from them. He detailed how he had kept bees in a cellar in which he had four hundred bushels of rutabagas. "It is no trick at all to raise bees, and no trick at all to winter them." He had known bees wintered without a particle of ventilation in a pit covered with straw, than a little water then dirt. He did not believe in the different diseases that it was said bees had. Their diseases were in nineteen times out of twenty, and the twentieth time too, caused by uneasiness.

Mr. Clarke of Canada, said that Sir Robert Peel used to say in Parliament, "Ireland is my difficulty." He would say wintering bees was his difficulty. His experience was that the best wintering temperature was about the freezing point. He believed that no rule could be laid down for wintering bees in all climates. Where he lived, the thermometer was 15° below zero last Sunday. Here he found it disagreeably warm. His experience was that the best temperature was such a one as would keep the bees in a semi-torpid state, and keep them at the same time supplied with fresh air.

Mrs. Tupper of Brighton, Iowa, said that for twelve years she had been successful in cellar wintering.

Mr. Scott of Kentucky, said that he lived as far South as the Blue grass region, and would like to hear about outdoor wintering.

Mr. A. F. Moon, of Michigan, said he had found the best success in outdoor wintering. He equalized his colonies before winter came. He sheltered them from the sun, and on the north and west sides from the weather. He found they consumed one-third less honey in this way than in indoor wintering. He divided the bee bread, so as to equalize the food for different stocks.

Mr. Mitchell and Dr. Claypool spoke on the subject.

The Chairman, the Rev. Mr. Van Slyke, said he

had upon one occasion wintered a hive out of doors on nine pounds of honey.

Dr. Hamlin, of Tennessee, gave his experience in outdoor wintering. He equalized his stock and regulated the ventilation to the strength of the swarms. He had used for a covering of the honey boards, straw, corn cobs or hay. Year before last he had a hundred and fifty-six swarms, and lost none of them.

SECOND DAY'S PROCEEDINGS.

On being called to order, the Association proceeded to discuss the

SECOND TOPIC.

Dr. Bohrer, Mr. Gallup, Mr. Moon, Mrs. Tupper, and others described the methods they adopted, in the practice of artificial swarming. Mr. Gallup's plan was to take a single frame without bees from each stock, until he had filled a hive with frames, then place it on the stand occupied by a strong stock moving the old stock to a distance. Thus while he multiplied as fast as it was wise to do so he kept all his stocks equally strong. Under this topic various advices were given to beginners that could not fail to be of great use to them.

THIRD TOPIC.

How far is it wise to prevent swarming? was the third topic.

Dr. Bohrer, of Indiana, said the answer to this question depended upon whether the subject was to produce the largest amount of surplus honey or the multiplication of colonies. If the former was the object, swarming should be entirely prevented.

FOURTH TOPIC.

Are hybrids better than pure Italians?

Dr. Bohrer said that if the bee keeper wanted to get up a fight early in the spring, hybrids were the bees to have.

Mr. Root said the hybrids were good workers on white clover. The pure Italians made honey from flowers that other bees would not touch.

Mr. C. F. Muth of Cincinnati, said he had hybrids, and had never had any difficulty with them about stinging.

General Adair said that he believed that we had two varieties of the native bees in the United States. The large gray bee, a distinct species from the black bee of the south, was, he believed, better than the Italian bee, and was not as vicious.

Mr. Stevens, said he had the gray bee, and had always had it, and preferred it to the Italian bee.

Mr. Peck, said a black queen fertilized by Italian drones brought forth gentle hybrids, but an Italian queen fertilized by black drones brought forth a vicious brood.

Mr. G. W. Zimmerman had his black queens mated with Italian drones, and found the resulting stock much more energetic than others.

Mrs. Tupper, of Iowa, would get pure importations from Italy frequently—that is, of queens—and put them in hives if she wanted the best results in honey from her bees.

FIFTH TOPIC.

The cause of bee swarming constituted the fifth topic.

Mr. Otis said his opinion was that the swarming of bees was owing to the storing instinct, together with the antipathy of one queen against any other queen in the same colony. A hive became stocked with honey and supplied with two queens, and it was found necessary to divide.

Dr. Claypool said he had last year one stand of bees that became overstocked, and hung outside the hive, but did not swarm.

Mr. Root said that in half a dozen instances, he had taken every drop of honey from a hive and cut out every queen cell, and yet the bees swarmed.

Mr. Barger said he had seen the queen drop in front of the hive and the swarm leave. He had also known ten queens go out with one swarm.

Mrs. Tupper believed, also, at one time in her life that bees never swarmed without a queen cell, but last summer she found the contrary. She did not have an Italian colony swarm, last season, that had a queen cell.

Gen. Adair said that last year he had a large number of swarms in which no preparation for swarming was made.

Mr. Moon had put bees in a hoghead and had them swarm. He had put them in a salt barrel, and found they would swarm when the barrel was only one-third full. He believed they swarmed because it was a natural instinct for them to do so.

Mr. Langstroth said that if there were no disposition on the part of the bees to swarm we should soon have an end of bees. He said no invariable rule could be laid down in regard to swarming, but that Mr. Moon's view was undoubtedly correct.

SIXTH TOPIC.

What are the troubles to be met with in bee keeping? This broad, endless question formed the sixth topic.

Mr. Moon enumerated the chief difficulties as bees swarming and going to the woods, the moth, robbing, and wintering.

Mr. Porter, of Minnesota, said he had had his share of trouble with them. He would rather undertake to find ten Italian queens than one black queen. A feather or bristle brush were either of them very irritating to bees. A willow broom was better in handling them. He detailed his experience in introducing a fine Italian queen into a hive of black bees. He killed the queen of the black colony and put his Italian queen in, then next day looked and saw her dead. He watched the hive closely, and at one time saw a small bee laying. He often found six or eight eggs in a cell. He came to the conclusion they needed food under these circumstances. He gave them food, and all was right after that. He was satisfied that where the bees had not honey, the queen would lay a great many eggs in the same cell.

Mr. Langstroth said he had known foolish queens to put a multitude of eggs in the same cell. He had known queens deposit eggs outside the cell, and that where fertilized.

Gen. Adair had also known queens to deposit eggs outside the cells. He had found this in the case of queens fertilized in confinement, and had known the same queen to act properly when she had been permitted to leave the hive for fertilization.

Mr. Clarke, of Canada, said that one great trouble in bee keeping was the lack of determination to succeed. Lack of attention to details was also the cause of much failure.

Mr. Hart told of a visit to a friend of his in the Western part of Ohio, where he met a lot of bee keepers. None of them had a book on the subject of bee keeping, and none of them took a paper on the subject. He advised them to form a society of bee keepers, and they did so. He has heard from

them since, and their success has been much greater than formerly. Ignorance was the great cause of failure, and there was no lack of it.

The Secretary gave notice of the expenses of the Association as \$8 per day for the hall. Nothing more, unless a report of the meeting was printed, which was desirable. A collection to defray expenses was taken up, amounting to over \$50.

A petition was circulated, to be sent to the State Legislature, praying that body to enact a law to protect bee keepers from thefts of bees, especially in the spring by enticement from their hives.

SEVENTH TOPIC.

Is the Italian bee superior to the black? was the next topic for discussion.

This topic had incidentally come into the discussion under other topics. The almost universal testimony was that the Italian bee was a better honey gatherer, more prolific and more tractable than any other bee.

Mr. Dallas said that the Italian bee would gather honey from watermelon flowers. Another speaker said it would make honey of the melons, but was fastidious. The melon must be a good one.

EIGHTH TOPIC.

Will the drone progeny of a pure Italian queen, fertilized by black drones, produce pure Italian drones? This knotty question was announced as the eighth topic.

Mr. Root said the theory was that drones were the product of the eggs of an unfertilized queen on a fertilized worker. Drones were also produced by fertilized queens, and the queen could lay drone eggs or worker eggs at pleasure. It was said that only the drones from a fertilized queen could fertilize a queen.

Mr. King said the object here was not to discuss the book theories, but if possible to controvert them and bring out something new.

Mr. Mitchell said he would not give a pewter cent for an Italian queen impregnated by a black drone. He believed the queen thereby received a taint that that she never got rid of.

PROPOSED TESTIMONIAL TO MR. LANGSTROTH.

Mr. King rose, and on a suspension of the order of business stated that Mr. Bickford had written to the *American Bee Keepers' Journal* an article suggesting that the bee keepers of America owed a lasting debt of gratitude to Mr. Langstroth, now the President of this Association, and that it would be proper for them to raise for him the sum of \$5,000. The Rev. Mr. Van Slyke had, without knowing anything of Mr. Bickford's action, written to him, making the same suggestion. He said that Mr. Langstroth was not an object of charity. The bee keepers of the country were immediately indebted to him. His health was not good now. He first made high bee culture possible by his genius and industry.

Mr. Van Slyke took the floor and said that the bee keepers of America owed a lasting debt to Mr. Langstroth, as the introducer of the moveable frame hive.

A call was made for volunteer subscriptions.—The following contributions were made: The Rev. H. A. King, \$50; A. I. Root, \$50; T. B. Hamlin, \$50; Mrs. Ellen S. Tupper, \$20; Messrs. Delland and Scott, \$20.

Mr. Root said that Mr. Langstroth's introduction of the moveable frame hive had revolutionized bee

culture and made the rearing of Italian queens possible.

Mr. Clarke, of Canada, said that he was told that if Mr. Langstroth had his rights he would now be well off. If this were so, he would rather subscribe to a fund to prosecute men who had infringed upon his patent and make them disgorge than give directly to aid him.

Mr. Otis said Mr. King had advertised Mr. Langstroth as an object of charity. He himself would give \$500 for justice to Mr. Langstroth.

Mr. King—I will give \$1,000, and draw the check now.

Mr. Otis—I would have you, Mr. King, prosecuted for your two worthless patents infringing upon Mr. Langstroth's patents.

The Chairman—This is personal and must be stopped.

Mr. King moved to refer this subject to a committee of three appointed by the chair, the committee to report.

The Chair appointed Messrs. King, Root and Hamlin as that committee.

On a subsequent motion Mr. Clarke, of Canada, was added to the committee.

Mr. Otis wanted to have that committee take the \$500 of his and the \$1,000 that Mr. King proposed to give for justice, and use it properly to care for Mr. Langstroth's interests. It would not be long till he would be well off, if that were done.

Mr. King said he could repel Mr. Otis' insinuations, but he did not choose to do so in this meeting.

Mr. Mitchell said that he was sorry this matter had taken the turn that it had. He himself had just perfected an arrangement whereby Mr. Langstroth would be greatly benefited.

Mr. Otis here popped up, and said he was glad to hear Mr. Mitchell speak so. Every hive he (Mr. Mitchell) had sold was an infringement upon Mr. Langstroth's patent. Mr. Otis was again silenced.

Mr. Mitchell was unanimously added to the committee.

Mr. Otis controls a large amount of territory for the Langstroth patent hive, hence his war with inventions.

A short time was given to exhibitors to show their inventions, which they availed themselves of. Several bee hives were exhibited. Gen. Adair explained an excellent device for fertilizing queens; also one for arresting the queen when a swarm was coming out. One instance was related of arresting a queen and the swarm went to the woods, staid seven hours and returned to the parent hive. Most of the articles exhibited were the same as were shown at Indianapolis.

PAPER BY MR. GALLUP.

Mr. E. Gallup, of Iowa, read a paper entitled "Successful bee keeping in a nut shell" which at some future time we hope to give to our readers in full.

A HONEY COMPANY.

Mr. King stated that in New York mel-extracted honey did not sell well. The fact that dealers in the article in New York reported no sale last fall had suggested the advisability of forming a honey company or association. The object of such a company was to secure an equality of the supply and prices in all the cities in the Union. He had thought of having mel-extracted honey made into a substitute for rock candy.

Mr. Moon was called to the chair and Mr. Van Slyke spoke of the chemical nature of honey, and its capacity for being manufactured into candy. It was not of the cane sugar class. Honey was grape sugar, with a small preparation of cane sugar. Its composition was six atoms of carbon, twelve of hydrogen and six of oxygen. It was made susceptible of crystallization by treating it in the candied state to two and a half parts of alcohol to one of honey subjected to pressure, then treated to one-tenth part of alcohol, warm. Then it would form semi-circular candy crystals. Another method was to put candied honey on bricks, allow the bricks to absorb the cane sugar element, then treat it with alcohol. The result was beautiful, needle shaped crystals—a candy retaining all the flavor of the honey in the comb. The uses of honey in pharmacy, in domestic use in the arts, were not sufficient to consume the quantities offered in the American market.

Mr. King said honey could be hardened so as to flint off by heating. This might be sold in railroad cars and elsewhere as candy.

Mr. Muth said he had some of his honey in jars candied, and he simply put the jars in warm water and it became liquid.

Mr. Peck, of New Jersey, said that the consumption of honey must be encouraged. The price must be put down so as to enable the poor to use it. It might be sold at ten cents-a-pound, and would rebound ultimately to the advantage of bee keepers.

NINTH TOPIC.

What are the best honey producing plants to cultivate in a poor honey district? Mr. Root preferred basswood. He did not know how long the bees worked it.

Mr. Dallas, of Kansas, said that in Kansas there was no basswood, and with some persons, the eating of honey produced in the State was attended with sickness. White clover honey was his favorite.

General Adair found a variety of turnip very excellent for apollen producer. There was also a shrub called the *Aralia Spinosa*, which bore one of the best honey producing flowers. He had few of them, and when in bloom they were covered with bees. He had never seen any buckwheat honey.

Mr. Porter, of Minnesota, said buckwheat was one of the best honey producing plants in the country. He had saved a swarm that came in the middle of September and owed his success to buckwheat. A good plant, in Minnesota for honey was the golden rod. Raspberry flowers were good honey producers. He also favored basswood. The dandelion was one of the best as well as one of the earliest honey plants. He had seen a variety of the lilac that would make as good a hedge as the Osage orange, and which was a fine honey producing plant. The willow also was good.

Mr. Langstroth indorsed what Mr. Porter said about the honey producing plants generally. He said that in some seasons there was no honey at all in the buckwheat. He had gone over acres and acres of it and had not seen a bee upon it. Again, he said the buckwheat was one of the best honey producing plants. He had gone through acres of it, and found it laden with bees. Much depended on climate, season and location. South of here it was worth little for honey. So with white clover. Some seasons it was good and some bad for honey making. The same was true of the golden rod. He meant these remarks to show the different and contradic-

tory observations that might be made from different standpoints, and to show the need of charity in comparing experiences.

The Rev. Mr. Van Slyke said that near New York city there was plenty of golden rod. His bees last season did not make any honey till the golden rod bloomed, and then they made great quantities.

THE MEL-EXTRACTOR.

Mr. Langstroth was requested to speak on the subject of the mel-extractor and its relation to bee culture. He said that in 1853 he became interested in the subject of extracting honey from the comb and using the comb for the bees again. He consulted mechanics. None of them helped him. If any one had said to him centrifugal force, he would have exclaimed "eureka." A foreigner discovered the process. This discovery would again revolutionize bee culture in this country. Twice or thrice the amount of honey could be produced from the same stock of bees and the same care now as formerly without it. Now some means must be devised to disarm the public of the suspicion that the extracted honey was a manufactured concoction. The candying of honey was not an objection. Age did not hurt it. He tasted some twenty-five years old and it was good. He had good authority for saying that good honey was taken from the ruins of Pompeii nearly two thousand years old. We have got to convince the public that this extracted honey was not adulterated. The way was to put the price down so that adulteration would be unprofitable. He thought the more the knowledge of how to manage this extraction and preserving of honey was diffused and acted upon, the better it would be for bee culture.

He suggested the use of a blue grass wisp, with which to brush off the bees from the comb.

He had experimented in artificial combs, and the result had been just nothing at all. He had doubts about the bees being induced to use the metallic comb.

He hoped that the invention of artificial combs would be successful, in which, even if the bees could not be induced to breed, they might deposit honey.

A vote of thanks was given to Mr. Langstroth for his address.

Mr. Langstroth added, in relation to young queens, that he ascertained that the supposed enmity of bees to unfertilized queens was in a great measure a mistake. He had put a young, unfertilized queen on the opposite side of the comb on which a fertilized queen was walking. A bee would sometimes stop and stare at the intruder, as much as to say, "Does your mother know you are out?" Sometimes a bee would take hold of her as if about to hustle her out, but let go again. A fertilized queen would be killed, and an unfertilized one accepted.

Mr. Langstroth being called upon again, said he thought the drone progeny of an Italian queen would be pure Italian drones, be the drone by which the queen was fertilized, a black drone on an Italian drone. He said that when the Italian Queen was first introduced into the country there was opportunity to test the theory. He said that in warm blooded animals where there was a common circulation between the mother and the unborn offspring, there was a decided influence exerted upon the mother. Mares that have produced mules had

years afterwards produced horses with mulish characteristics and of mule-like build.

Mr. Moon said that the drone progeny of an Italian queen, crossed from a black drone, was of a lighter color than the pure Italian drones, but, could not be depended on as pure.

Mr. Langstroth said that there was every reason to believe that the Italian bee was itself a hybrid. Long before the Egyptian bee was introduced into this country, there was evidence of a bee in America with a tuft on the head like the Egyptian bee. It is said, too, that the Italian bee could be produced from a cross with the black bee. He had seen in Italy where it was impossible to introduce black bees, Italian drones resembling the drones of the black bee.

In regard to the fertile workers, he said that Huber thought workers had robbed a little and eaten of the ambrosia with which the queen was fed. Then they might be bees produced in imperfect queen cells—*i. e.*—cells not quite large enough for a queen, and a little larger than that in which the worker was produced. He said instances have been found in which the head of the bee was a drone and the anterior part a worker, and *vice versa*. This was accounted for upon the theory of a double germ.

Mr. Gullup gave an experience of his in which he discovered a queen, with the fourpart of the body that of a drone.

TO THE TOPIC AGAIN.

Mr. Moon gave his experience as to the honey-producing plants. In dry seasons honey-producing plants failed, while in good seasons they were rich in sweetness.

Mrs. Ellen S. Tupper said that in the region in which she lived there were honey-producing plants all in the season. She had buckwheat sown at various times, early and late every season. The weather made a difference. Wild cherry made a great deal of honey, but it was unpalatable, as it had the bitter taste of the tree. The Alaska has been good. She believed in sowing for the bees plants that could be used for something else.

Mr. Peck said he had found a plant in the Southern States that was the best of honey-producing plants, but he never heard the name of it. The honey from it smells like verbenas.

Mr. Van Slyke said he had received the flower of the tree spoken of by Mr. Peck, and had named it, but could not remember the name.

Mr. A. J. Markley, wanted to know if the blackberry was a good bee-plant.

Mr. Van Slyke said as far as his experience went the blackberry was not good.

TENTH TOPIC.

This was the question—"What is the benefit of salt to bees?"

Mr. Zimmerman said the bees were fond of it. When put under the hive it prevented ants from innovating the hive.

A member said that he had learned from an old and successful German bee keeper that he had put salt upon the alighting board, and had never lost a brood of bees.

General Adair said he found salt a good disinfectant among bees during bee cholera.

ELEVENTH TOPIC.

This topic was "the best method of introducing queens." Mrs. Tupper was called upon. She

scarcely ever lost a queen in introducing her. She first detached a colony, put the queen with it, then took the bees from the hive away and allow them to return a few at a time. The detached colony she put in a new hive, precisely like the old one. Another way was to put the queen in a wire cage and cover the end of it with a thin coating of wax and put it in the hive. In twenty-four hours afterwards, or thirty-six at most, the bees would liberate her. Then they never hurt her.

Mr. King said he had lost five queens in that way. There was a small about imported queens that bees hated.

Mr. Wright put the queen in a large cage, and introduced with her thirty or forty of the colony she was to preside over, one at a time. He would allow them to stay with her thirty-six hours, then would liberate her with them in the hive.

Mrs. Tupper had succeeded by taking the queen from a hive, agitating it, and then introducing the new queen.

Mr. Porter had smeared the queen with honey and introduced her.

Mr. Wright had seen queens performed by having their wings gnawed off by the other bees in the cleaning process when smeared with honey.

Mr. Benedict removed the old queen and introduced the new one at once. He first dipped her in sugared water.

Mr. Muth had done the same way, and had only once failed.

General Adair had had queens stay in the hive two days, and then be killed. In a particular instance a swarm killed eight queens, and obstinately refused a queen afterward. He usually caged a queen for several days in the hive she was to rule.

Mr. Zimmerman had a refractory colony, and by halving it and another colony, and creating out of them two colonies, one-half of each of which was strange to the other, he introduced the queen to the queenless colony, where she was well received.

Mr. Markley gave an amusing account of his difficulties in introducing queens, and his experiments in what he termed "bumbleizing" the black bee. In the latter process he introduced a bumble bee into his hive and failed.

Mr. Firman had met and conquered the difficulty complained of by Gen. Adair by removing the bees from the hive, putting the queen in with the comb left in the old hive, then taking to a distance the hive to which the colony has been transferred and allowing the bees to return a few at a time to the original hive. The queen to be supplanted must first be removed.

LETTER FROM K. P. KIDDER.

A letter was read from Mr. K. P. Kidder, of Vermont, excusing his absence from the convention, and offering suggestions for that body. He suggested that it would be better for bee keepers to strengthen and increase the size of their stocks than to multiply their number.

Mr. King offered a resolution that the Association tender a vote of thanks to the various roads that had reduced fares to delegates attending it; also a resolution of thanks to the hotel keepers of the city that have entertained delegates.

Both resolutions were adopted unanimously.

On motion of Mr. Peck, the matter of electing honorary members was referred to a committee of three, viz.: Messrs. Peck, Moon and Adair.

THIRD DAY'S PROCEEDINGS.

The Committee on Honorary Membership reported as follows:—

The Committee on Honorary Membership would report that, in their views, the title of "Honorary Membership of the American Bee-keeper Association" should be conferred as a distinguished mark on those only who have assisted the Bee-keepers of North America in improvement and progress in the science of Apiculture, and that such title shall be relieved from all taint of a mutual admiration society. They, therefore, would recommend the names of the following gentlemen from the Germanic Confederation; F. W. Vogel, Brandenburg; George Klein, Lenthonis; M. Schmidt, Nuernburgh; Baron Von Beclopsch, Gotho; Baron Lina, Gotho; also, Major Hemschka, M. D'Ubine and Viscount de Saliento, from Italy; F. W. Woodford, from England; and Messrs. A. S. Packard and C. V. Reilly, of the United States, as persons deserving of the honor.

It might be claimed that some of the prominent Bee-keepers of the country should be included in the above list, but as they have already been voted members of the great family of Bee-keepers of North America, the Committee deem it improper to again reiterate the universal expression of such opinion. After some discussion the report was adopted. A vote of thanks to the Associated Press of Cincinnati, for their reports of the proceedings of the Convention, was passed.

A resolution was offered for the appointment of a committee of five for the purpose of securing a reduction in the railroad fares of delegates to the next Convention at Cleveland.

The resolution passed, and the Chair appointed Messrs. Moon, King, Mitchell, Clarke and Waite as the committee.

Mr. Curtis, of Ohio, offered a resolution that this convention recommend the formation of State, County and City Associations, and that the apicultural and agricultural journals be requested to bring the subject before their readers.—Adopted.

Mr. Adair, of Kentucky, rose to an explanation. He had been misrepresented in one of his addresses. He had not said there were two distinct kinds of bees native to this country. There were two kinds most in use in this country, the black bee and the grey bee, but they were neither indigenous to this country. He also referred to the disappointment some had expressed at the small size of the Italian bees he had sent them.

The Committee on Preparing a Testimonial for Mr. L. L. Langstroth reported in favor of the appointment of a Testimonial Committee, and urged the further circulation of the subscription list commended by Mr. King, also the acceptance of a proposal made by Mr. Mitchell, that a Photograph of Mr. L. should be prepared and sold to the members of the association at \$1 each, of which seventy-five cents should be paid to Mr. Langstroth.

Pending the adoption of the report Mr. Langstroth made a few remarks, expressing a wish that the association should not carry the proposed measure into effect. He hated to have his private affairs occupy the time of the convention, and he would rather no action was taken in the matter. The report was adopted, amidst a general expression of regard and gratitude toward Mr. Langstroth.

THE EGYPTIAN BEE.

Mr. Gray was called upon to give his opinion on

the Egyptian bee, but declined because of not having any knowledge on the subject.

Mr. Mitchell was called out on the same subject. He thought they were the prettiest bee he had ever seen. Last spring he was as proud of them as any one could be, and he went so far as to give them a puff, and extolled them as no bee ever was before praised. He moved them out on Grand Prairie last summer to give his four colonies of Egyptian bees a broad field to labor in. He first prepared himself for a fight with them, for he had heard they were cross, but when he lifted up the slide to his hives they came out in a fearful manner.

They were lively in the extreme. They came out in multiplied thousands, stinging everything—himself, his assistant, his horses, dogs, children, the trees on his place, and, in fact, everything. (Laughter.) He wanted to do the Egyptian bees credit. They gathered honey well—there were no better honey-gatherers than the Egyptians: but when their honey was once gathered they kept it. (Laughter. They commenced stinging on a man's fingers and stung all the way up his arms, up his neck, and even to the top of his bald head. (Applause.) That was his experience in the matter. If his hearers knew what a yellow jacket was, he would put any Egyptian bees against it. He thought of crossing them with the Hornet for the purpose of making fighting stock—that was all they were fit for. (Continued laughter.)

Mr. Langstroth had imported the Egyptian bees in considerable numbers, and his experience had been quite similar to Mr. Mitchell's. They were very cross, and although he did not know that those he had had were perfectly pure, he thought they were not a desirable kind to keep. He thought they were a hybrid bee.

Gen. Adair thought that the Egyptian bee had not yet been introduced in its purity, and that the bee-keepers should await the result of a larger experience in the matter before condemning them.

Mr. Langstroth spoke of the use of dry buffalo or cow manure to burn for smoking away bees, and thought it was the best thing that could be used.

Quite a discussion ensued as to the best way to manage angry bees. It was participated in by Messrs. Adair, Langstroth, Moon, Mitchell, and others. Nothing new was developed in the matter, however.

Mr. Dallas moved that the Convention now adjourn sine die. Carried.

Our individual thanks are specially due to the Associated Press of Cincinnati, to whose full, and for the most part, very correct reports, we are mainly indebted for the foregoing account of the Cincinnati meeting of American Bee-Keepers.

THE WINDSOR NURSERIES.

We desire to call attention to the advertisement of stock now for sale at the above nurseries, and in doing so, would seize the opportunity of penning a few appreciative words concerning an establishment which has earned for itself a high reputation with all who have dealt with it to any extent. These nurseries have been established about twenty years, and young trees have gone forth from them

to all parts of Canada, invariably proving themselves, sound, healthy, well-grown, and remarkably true to name. The soil, climate, and location of Windsor are unusually favourable for the rearing of young trees and plants for general distribution in this country, while Mr. Dougall, the proprietor of these nurseries, who personally superintends every part of their management, is a thoroughly intelligent, and with all enthusiastic fruit-culturist, sending forth nothing but what has been completely tested, and can be confidently recommended. While all the stock grown at these nurseries may be relied on as good and genuine, Mr. Dougall, makes a speciality of the pear, both standard and dwarf, particularly the latter. The soil of Windsor is peculiarly well adapted to the pear, and Mr. Dougall, makes a sort of pet fruit of it, giving extra attention to every thing pertaining thereto, testing all new sorts as quickly as possible, and fitting himself to give advice as to the best varieties for particular localities.

We took the opportunity of visiting these nurseries about the first of October last, and were exceedingly pleased with the appearance of the young stock of all kinds, especially the dwarf pears and apples. The trees wore a thrifty, hearty look, showing that they had not been stimulated into precocious growth for market purposes, but had vigor and constitution. It is with trees as with human beings, much depends on having a good robust constitution to start in life with. Our climate is of so rigorous a nature that hardiness is a first requisite in fruit trees. It is vain to expect success in such a climate with those of delicate habit. They will struggle on after a sickly fashion, but never amount to much.

As vegetables in spring starts early at Windsor, it is desirable that orders be sent in March, or about the first of April. Disappointment often results from orders coming in so late that trees cannot be safely lifted. Parties unacquainted with the best varieties of fruit may confidently trust the judgment of Mr. Dougall, mentioning as a guide the number desired of Summer, Autumn, and Winter kinds.

To all who are inexperienced in fruit-growing, we take pleasure in warmly recommending a little publication issued by Mr. Dougall, and entitled "The Canadian Fruit Culturist." It is in the form of letters to an intended fruit-grower, and treats very fully on the proper location, soil, preparation, planting, and after-cultivation of orchards, vine-yards and gardens, giving directions for the best mode of cultivating each kind of plant, and select descriptive lists of the choicest varieties of fruit. We are glad to find that this useful little work has reached

its fourth edition. It should be obtained by all persons who intend to plant trees, however limited may be their field of operation. It is sent free by mail to any address for 25 cents, and may be had either of Mr. James Dougall, Windsor, Ont. or of J. Dougall, & Son, Montreal.

THE CANADIAN DAIRYMEN'S ASSOCIATION.

The fourth annual meeting of the above body, of which, a full report will be found elsewhere in this issue, under the head of 'Agricultural Intelligence,' was, in all respects a most successful and satisfactory affair. In point of attendance, interest and pecuniary results, it exceeded every previous occasion of the kind, and gave conclusive evidence that the dairy business in this country is rapidly expanding and improving. It was particularly gratifying to observe the eagerness with which the dairymen sought information, the deep attention with which they listened to the addresses, and the general determination to adopt every useful appliance, and aim at the highest standard of excellence in the article produced at the factories, which are now becoming so numerous. It is only thus that we can hope to compete successfully in those markets to which we send our cheese, for all that science and art can bring to bear on the manufacture and sale of the article is in active, ceaseless rivalry with us.

It is to be hoped that the suggestion made in the annual address and embodied in one of the resolutions, with regard to the desirableness of a model dairy farm being established by our Provincial Government, will not be suffered to sleep. Our American competitors in the cheese business are moving energetically in this direction, and we must not be behind them. The value of the dairy interest to the country, both in a commercial and agricultural point of view, justifies, nay, demands an outlay of public money towards working it up to the highest possible point of development.

The Association has now fixed Ingersoll as the permanent place for its annual meetings, and though this can hardly be expected to please everybody, and in truth, rather inconvenient for our eastern dairymen, it is to be hoped no sectional jealousy will arise out of this decision. We believe it was come to as the result of a broad, general view of the question—what will secure the greatest good to the greatest number. It was not determined by the majority on the principle that "might makes right," or for the sake of personal convenience, and those who dissent from the decision, will, we hope, acquiesce gracefully, and believe that the motive inducing it was unselfish and patriotic.

EDITORS BOOK TABLE.

THE PRAIRIE FARMER'S ANNUAL FOR 1871.

This is the fourth issue of its kind, and is a decided advance on its predecessors, embodying a large amount of useful information. A few of the earlier pages are devoted to "Homes for the People," and contain house plans from \$500 to \$2,000 in cost. Next, we have short Essays on Lawns, Ferneries, Kitchen Gardening, Strawberry Culture, Timber Trees from Seed, Testing Milk in Factories, Rearing Calves, Training Colts Care of Farm Machinery, Preserving Fruit Hermetically, Field Seeds The Greyhound Breeding and Fattening Swine Poultry, and Poultry Houses, Home-made Vinegar and several other topics the whole being beautifully illustrated and got up in a style quite equal to eastern publications of the same sort. Price 50 cents. Address: Prairie Farmer Co., Chicago, Ill.

CATALOGUES RECEIVED.—Descriptive catalogue of plants: Elwanzer & Barry Rochester; also their descriptive catalogue of fruits. John A. Bruce & Co's illustrated and descriptive seed catalogue.

EDITORIAL GLEANINGS.

France, though not larger in area than the State of Texas, produces more wheat than the whole United States, the figures being 350,000,000 bushels for France, and 240,000,000 for the United States.

An Association for the purpose of breeding fish has been organized in New York. Rev. W. Clift, Mystic Bridge Conn. is the President, and L. Stone, Clarencetown, N.H., the Secretary.

It is proposed by the Illinois Swine Breeders' Association to hold an extensive exhibition of swine in the coming fall. The place of holding the show is not yet decided, but in all probability Chicago will be selected for that purpose.

An enterprising experiment is being made of transporting silkworm eggs from Yokohama, in Japan, to Lyons, France, *via* steamer to San Francisco, thence by rail to New York, and again by steamer to Havre.

The Illinois Agricultural Report says:—"The fences of the United States have cost more than the houses, cities included; more than the ships, boats, and vessels, of every description, which sail the ocean, lakes, and rivers; more than any one class of property, aside from real estate, except, it may be, the railroads of our country."

We notice in the papers the announcement of the death of Edwin Hammond, of Middlebury, Vermont. Mr. Hammond has done more toward the improvement of the Merino sheep, and establishing from it a distinct American variety, than any other man in the country. He died at the ripe age of seventy.

The premium list made up by the Directors of the Iowa State Agricultural Society, recently in session at Des. Moines, is as follows:—For the best ten acres of artificial timber, \$1,000, payable in 1881. For the best cultivated farm, \$500, payable in 1876.

For the best mile of hedge, \$250, payable in five years. For the best five acres of orchard, the same payable in eight years.

The Executive Board of the Illinois State Agricultural Society, at their recent meeting, adopted unanimously the following resolution:

Resolved, That this Board respectfully ask of the General Assembly the passage of a law that will more effectually protect life and property from destruction by the depredation of dogs.

CHEESE FACTORIES IN ENGLAND.—We notice that the attention of English agriculturists is being attracted to the American cheese-factory system. The attention of the Society of Arts was directed to this subject during the Smithfield Show week by Mr. Jenkins, Secretary to the Royal Agricultural Society. Mr Jenkins insisted on the advantages of the factory system, both on account of the economy of the process and the superiority of the produce, and showed, by the example of the Cheshire factory organized by Mr. G. Jackson, of Tattenhall Hall, near Chester, that the American principle was applicable in England.

ENGLISH AGRICULTURE.—An English exchange says: "The past year has not been a profitable one for farmers. In the spring the wheat crop suffered much from inclement weather; and although later in the season it recovered itself to a considerable extent—so much so as to give an average crop over the entire country—yet in many extensive districts the yield is unsatisfactory. Although wheat may have, on the whole, been an average crop, other plants suffered severely from the long-continued drought; and the present winter finds the farmer exceedingly deficient in natural stock foods. 1870 may, indeed, be looked upon as having been the third of a series of bad seasons for the tenant farmer commencing with the droughty year 1868. Much depends on the coming winter and spring, and if these should be severe, great difficulty will be experienced by keepers of live stock. Valuable aids are, however, at hand, in the shape of chaff-cutters, root-pulpers, mills, and various artificial feeding stuffs."

Agricultural Intelligence.

CANADIAN DAIRYMEN'S ASSOCIATION.

FOURTH ANNUAL CONVENTION.

We condense from the *Globe* the following report of the proceedings of the above-named body:—

The Canadian Dairymen's Association held their fourth annual meeting at Ingersoll, commencing Wednesday February 1st. The President, Mr. J. Noxon, occupied the chair.

A brief morning session was devoted to the usual routine business of appointing committees and reading minutes.

In the afternoon there was a very full attendance completely filling the hall. The committee on the order of business having given in their report, the President, in accordance with their arrangements, delivered his address.

DAIRY HUSBANDRY AS AFFECTING CANADIAN AGRICULTURE

Prof. Buckland next addressed the meeting on the subject of dairy husbandry as affecting Canadian agriculture.

He commenced by referring to the prevalent modes of husbandry which had till a period quite recent, obtained in Canada. From the early settlement of what is now the Province of Ontario, as the land had become denuded of the primal forest, the production of wheat occupied the chief thoughts of the settlers. At this period the price of live stock, beef, mutton, and dairy products was very low. Canada did not produce a fourth of the cheese to meet her consumption, but the butter exported to the British markets was merged in quantity, and decidedly inferior in quality. In this juncture of affairs it was fortunate that increased attention began to be diverted to dairy husbandry, which soon led to the improvement of live stock, particularly cattle, and ultimately to the introduction of the co-operative system in the manufacture of cheese. A pressing want now began to be earnestly met; hitherto the practice had been to make grain-growing the farmers' chief object, the soil was rapidly being run down, and an increased quantity of live stock, of improved breeds, became a necessity to restore the long lost balance. In this way, by increased attention to dairying and pasturage, involving more and better kinds of stock especially if coupled with a more thorough cultivation will the amelioration of Canadian agriculture be surely, though noiselessly worked. Land laid down to pasture is placed in a position of rest; and being free from the demands of grain crops for several years, naturally recovers to some extent, its lost fertility. The introduction and extension of dairy husbandry in Ontario cannot fail to increase progressively the wealth of the Province, and in several ways to impart precision and system to farming pursuits generally, improve the breeds of stock, and materially assist in determining the kinds best adapted either for general or specific purpose.

CURING CHEESE AND VENTILATING CURING HOUSES.

The subject of the best method of curing cheese and the proper system of ventilating curing houses was taken up. The question was opened by Mr. Farrington, who considered the great desiderata to be a proper temperature—about 70 degrees—and sufficient ventilation carefully supplied, not by open windows, which occasioned too strong currents, but by an even sifting of the air through the floor or walls.

Mr. LOSSE would make the curing house tight to preserve it from cold, and provide ventilation through the floor.

Mr. GALIVER, of Dorchester, thought 'one of the most important matters to attend to was maintaining the requisite heat, for which purpose he considered a furnace under the curing room connected with hot-air pipes far better than stoves alone, producing a more even, better diffused and more easily regulated temperature.

Other speakers—among them the Rev. W. F. CLARKE, Mr. CASWELL, and Mr. JAS. HARRIS—expressed the same opinion, and was stated that such heating apparatus could be erected at a cost of from \$25 to \$100.

Mr. WHITLAW (of Beachville) advocated warming by steam, where it could be adopted, as the most economical and the most cleanly. Heating by stove-pipes was condemned as dangerous and apt to impart a taint to the cheese from the condensed soot.

Mr. DYSON (of London) described the apparatus

for heating by hot air, and laid much stress on the importance of securing the supply of air to be heated from the outside of the building rather than from under the floor, and where it was apt to be foul.

SOILING CATTLE.

The subject of soiling cattle was next taken up, and its advantage very forcibly advocated, not only as a means of supplementing the feed in dry seasons, but as the most effectual and economical system of feeding altogether. Indian corn, especially the western variety, was recommended; and sweet corn, it was considered, would be still more advantageous.

Mr. BALLANTINE mentioned an instance that had come under his notice in visiting a factory in Addington, where Mr. Nimmo, who practiced soiling, had obtained for six months an average yield of 720 pounds of cheese for each cow. Soiling possessed also the incidental advantage of preserving cattle from the plague of flies.

MR. CHADWICK'S ADDRESS.

Mr. CHADWICK, the former President of the Association, then delivered an interesting address, in which he advocated the necessity of enlarged intelligence among dairymen, as the process of their manufacture where not merely mechanical, but chemical, and required the nicest skill and adjustment. He urged the importance of a more thorough education of the farming community, contending there was no profession or pursuit in which such enlarged knowledge and training were more needed. Agriculture is a growth like the plant it cultivates, and like the mind itself, the more it is developed the more it yields.

At five o'clock the meeting adjourned.

EVENING SESSION.

The principal business of the evening was the annual address, which was delivered by the Rev. W. F. Clarke and was a comprehensive and interesting exposition of the Canadian factory system of cheese making.

The following abstract is little more than a bare enumeration of the topics considered.

ANNUAL ADDRESS.

Mr. Clarke introduced the subject of his address by referring to "old style" and "new style," in politics, education, locomotion, agriculture in general, and dairying in particular. All present being more or less versed in the new style of dairying, his object must mainly be to give such information, rules and practical suggestions as tended to render an accepted system more efficient and remunerative. A comprehensive treatment of the subject involved recurrence to first principles, and indeed first things. The starting point in dairying is the cow—and under this head a variety of rules were given to guide in the choice of cows having good milking characteristics. Individual cows having these would be found in all breeds, and largely in our native breed. The treatise of Guenon on milch cows was recommended as a useful guide on this subject. The next topic was cow management. To succeed in dairying, the wants, well-being and productiveness of cows must be made a constant study and ceaseless care. He urged regularity and abundance of food, plenty of pure fresh water, thorough cleanliness of animal and stall, proper degree of warmth, sufficient venti-

lation, regularity in milking careful and complete milking, and kind gentle treatment generally. Directions were given as to feeding at various seasons so as to keep up the milk yield. Pasturage and soiling were discussed, and the improvement of pastures and meadow by stocking them with the best grasses was urged. Root growing was recommended, and various suggestions made for feeding and rearing dairy stock. The third topic was dairy manipulation and the cardinal rule here was cleanliness in everything and of everything. The care of milk generally and the remedies for tainted milk were the chief points treated under this head. Factory buildings, fixtures and work were next referred to; and practical direction on choice of site, plans of building, internal fittings, and routine of factory work, according to the latest and most approved methods, were furnished. Sunday cheese-making was next discussed the pleas for it answered, the needlessness of it shown, and the importance of the Sabbath rest, both in a physical and moral point of view, urged; influential testimonies against Sunday cheese-making were quoted and the methods of dispensing with it pointed out. In conclusion, several miscellaneous matters were briefly touched upon—such as the manufacture of small cheese for home consumption; the desirableness of memorialising the Legislature for an experimental dairy farm, now that they are proposing to establish model, reformatory, and asylum farms; the necessity of estimating milk according to quality and not by weight; keeping up the productiveness of old dairy regions; and the objections to coloring cheese. The opinion was expressed that the dairy business is yet in its infancy, and is destined to prove not only a valuable commercial interest but a mighty recuperative power in our agriculture. Too exclusive devotion to dairy farming was deprecated and a mixed husbandry recommended. Factories must not be too numerous, nor farms entire'y given up to dairying. The cheese yield and prices paid during the past season have been highly encouraging, while the future looks bright, not only for dairying, but for crops markets, and business generally.

The address was listened to with attention by a large audience who crowded the hall to overflowing, and a cordial vote of thanks moved by Mr. Odwell, and seconded by Mr. Chadwick, was unanimously passed.

SECOND DAY'S PROCEEDINGS.

On Thursday morning there was again a large assemblage in the Town Hall, and a little before ten o'clock the President called the meeting to order.

NEXT PLACE OF MEETING.

The first business was the receiving of the report of the committee on order of business. After which the committee appointed to consider the best place for holding the next annual meeting, handed in their report recommending Ingersoll for that purpose. This report having been submitted to the meeting, an amendment was moved by Mr. Daly, that Belleville be selected for one year.

Mr. B Hopkins, Reeve of Deerham, moved again in amendment that the constitution of the Association be altered, so as to make Ingersoll the permanent place of meeting.

A number of members took part in the discussion the greater proportion of whom strongly favoured Ingersoll, and when Mr. Hopkin's amendment was

put to the meeting it was carried by a large majority.

DISEASES OF DAIRY STOCK.

Professor Smith was next introduced, and delivered an address on the disease of dairy stock. The lecture was illustrated by anatomical specimens and drawings, and was of a thoroughly practical character, on matters of such importance to the owners of cattle that to do it justice, it should be read and studied entire. In reference to the contagious foot and mouth disease, Mr. Smith reiterated his conviction that no authentic case of the disorder had yet made its appearance in Canada; but he considered it necessary that our authorities should take measures to guard against its introduction from the adjacent States.

At the conclusion of the lecture, a unanimous vote of thanks was passed to Professor Smith and Professor Buckland for their valuable addresses.

FLY AND HOOF DISEASES.

Some discussion ensued in reference chiefly to the fly disease and hoof ailment, which had been so prevalent during the fall. Among others, Mr. Moulton who had resided many years in Cheshire, England, stated that he had been quite familiar with the forms of foot disease in the old country, including the contagious epizootic aphtha; that he had seen over three hundred cases of hoof disorder in the county of Oxford during the past year, and was perfectly satisfied that the complaint was altogether distinct from foot and mouth disease, not one case of which, he was convinced, had occurred in the Province.

The meeting adjourned soon after twelve, to meet again at half-past 1 o'clock.

ELECTION OF OFFICERS.

In the afternoon, the first business was the reception of the report of the committee on nomination of officers. The following were nominated:—

President—James Noxon, Ingersoll; first Vice President—W. Yates, Belleville; 2nd Vice-President—T. Ballantyne, Perth; Secretary Treasurer—R. James, Ingersoll.

The report was adopted.

FINANCIAL REPORT.

The report of the Finance Committee was read, and showed a balance in the Treasurer's hand of \$128.

TAINTED MILK.

The discussion of the causes of tainted milk and the remedy was then brought up.

Mr. Farrington opened the question. The general causes, he considered, were heat and rennet, and the usual prevalence of this failing during the past year he attributed to the peculiar moist and sultry season, which had affected the cattle themselves, as well as rendered the milk more ready to decompose and taint. The condition of the atmosphere also affected the herbage, and rendered it less sweet and wholesome for cattle. In regard to remedy, he recommended cooling the milk as quickly as possible, and the observance of the strictest cleanliness throughout. As a cure for taint, he advised the use of the curd mill, so that the salt might more quickly penetrate the particles.

Mr. Ballantyne thought that the chief, if not the only origin of the tainted milk, of which the cheese of the past season had shown such evidence, was simply want of cleanliness. He had found that the

cause of the defect in his own factory was traceable to a very few patrons, and the course he adopted was to refuse to take milk from patrons who were not strictly observant of perfect cleanliness.

Mr. Manning employed a simple apparatus for cooling the milk immediately after it was drawn from the cow. It consisted of two tin pails, one within the other, leaving a narrow space between. The inner pail was filled with iced water, and the outer one immersed in a trough of the same. The milk to be cooled passed by means of a tube through the inner pail into the narrow space between the two and flowed out into a suitable receptacle, thus being subjected in a very thin stratum to the action of two bodies of ice cold water. He had found the contrivance very efficacious. It would be introduced to the public in the coming spring. With six or eight pails of water, and about 50 lbs of ice, he could, with the aid of this apparatus, cool quickly 500 lbs of milk.

MODEL FARM.

At this stage of the proceedings Mr. Chadwick proposed, and Mr. Ballantyne seconded the following resolution, which was carried unanimously: "That in view of the establishment of a Model Farm by the Legislature of Ontario the President and Secretary of the Association be empowered to memorialize the Government of Ontario, urging the establishment of the same; and that in connection therewith due provision be made for giving proper instruction in dairy matters, whereby this very important and rapidly growing branch of Canadian agriculture may receive that attention its importance demands.

FLOATING CURDS.

The question of floating curds, cause and remedy was then brought up. Again want of cleanliness was acknowledged as the chief cause of the fault. The treatment recommended was to use additional acid, grind the curd, and salt more heavily than usual.

GRINDING CURDS.

The next question on the programme was to what extent has the system of grinding curds, and making cheese once a day, been practised the past year? and the result.

Mr. Wilnot of Milton, said he had carried out both practices for four years and had found it work satisfactorily. He thought there was a great waste of labor to all parties in making twice a day. The patrons found no difficulty in keeping their milk cool, mostly by keeping it in cans let down, immediately after milking, into a well.

Mr. J. A. James of Culloden, had also practiced grinding curds. He ground twice, and pressed for 38 hours.

Mr. James' cheese, it was stated by Mr. Caswell, had obtained a prize for the best make at Belleville, and had secured a first-class reputation in the English market.

CHEESE FACTORIES.

The proper construction of cheese factories was the next topic discussed.

Mr. George Hamilton of Cromarty, gave a brief and practical account of the principles to be kept in view regarding site, supply of water, facilities for draining and provision for constant and thorough cleanliness. He recommended the curing house to be a separate building, if possible, and advised the planting of shade trees around factories.

MISCELLANEOUS.

The closing hour of the convention was occupied, after the disposal of the questions on the programme, by a few promiscuous topics.

Mr. Farrington said the best width of cotton for bandages was 39 inches, which was well adapted to a cheese made with 16-inch hoop, and from 9 to 10 inches thick.

The Liverpool factory filled salt, manufactured for dairy purposes, was recommended as the best.

Attention was also directed to the importance of not crowding factories too closely in any locality.

A few other miscellaneous topics were briefly discussed, and shortly after 4 o'clock the convention adjourned, after a well-attended and interesting session.

Our Country.

OUR HERRING FISHERIES.

[From the New Dominion Monthly.]

Very wonderful is that great harvest of the sea which is annually reaped around these shores—a harvest which needs no tillage of the husbandman, the fruits of which are gathered without either sowing seed or paying rent. First comes the spring seal fishery in which some half million seals are captured. This is succeeded by the summer cod-fishery, lasting till the beginning of October, and yielding not less than sixty millions of cod annually, allowing an average of sixty fish to each quintal of dried cod. Then comes the herring fishery, beginning in October, and in some localities lasting throughout the winter. The herring fishery of Newfoundland is yet in its infancy. In 1867 the total export of herring was 149,776 barrels; in 1869, owing to a failure in the Labrador fishery, the catch only reached 80,935 barrels, the value, at three dollars a barrel, being \$242,805. This year I fear, owing to another disastrous failure on the Labrador the export of herring will be considerably less than that of last year. Compare this return with that of Britain, where the great bulk of the herring is taken on the shores of Scotland and the adjacent islands. In 1862 no less than 832,004 barrels were cured in Britain, besides an immense quantity used in a fresh condition. The New Foundland herring fishery might be increased to almost any extent—the shoals of herring that periodically visit our shores being enormous. At present the chief seats of the herring fishery, in addition to Labrador, are Fortune Bay, St. George's Bay, Bay of Islands and Bonne Bay. The Labrador herring enjoy a world-wide reputation, and the herring taken in Bay of Islands are equally fine. This locality which seems destined one day to be the Amsterdam of Newfoundland, has a winter herring fishery, which lasts from December till April. The bay is frozen over, holes are cut in the ice, and the herring taken in nets. From fifty to a hundred vessels load here during the winter for the Canadian and American markets. From Fortune Bay large quantities of herring are in a frozen state, and sold fresh in the markets of Boston and New York. Hitherto little attention has been paid to the cure of herring, and, in consequence, the reputation of Newfoundland herring has suffered in foreign markets. There is urgent need of a system of inspection and branding by

Government officials, such as prevails in Scotland, and has worked so advantageously. We also require an importation of skilled curers from the North of Scotland, to impart to our people a knowledge of the art of curing the herring.

MIGRATIONS OF THE HERRING A MYTH.

The phenomena of our herring-fishery completely disprove the old theory about the annual migration of herring to and from the Arctic seas, and go to show that the herring is a local not a migratory fish. The theory of Pennant and the older naturalists was that in the inaccessible seas of the high northern latitudes, herring were found in overwhelming abundance, securing within the icy Arctic Circle a bounteous feeding ground, and, at the same time a quiet and safe retreat from their numerous enemies. These theorists further held that, at certain seasons, inspired by commanding impulse, vast bodies of this fish gathered themselves together into one great army, and in numbers far exceeding the power of imagination to picture, departed for the waters of Europe and America, sending off detachments in various directions as they reached their place of destination. Till recently this theory was almost universally accepted; but an extended acquaintance with the habits of this fish has now completely exploded it. The ascertained facts regarding the natural history of the herring along these shores, are entirely irreconcilable with the supposition of an annual migration, and all combine to show that it is a native of the seas where it is taken. In point of fact the herring is taken on the coast of Newfoundland and Labrador all the year round, the fishery commencing at various times in the different localities. Besides the herrings of different localities are marked by different features. In appearance and flavor the Labrador herring is essentially different from that of Fortune Bay, and the same description of fish is invariably taken in each locality. The superiority of the Labrador herring is doubtless owing to the superior feeding it enjoys, for it is natural that the animals of one feeding locality should differ from those of another. Different races of herring exist in different places, having marked differences in size, shape and quality. From merely glancing at the fish, an expert fisher will tell in a moment their different localities. The St George's Bay herring differs widely from those taken in the Bay of Islands, and a Bonne Bay herring is never mistaken for a Fortune Bay herring. All these facts point to one conclusion—that the herring is a native of the water in which it is taken, and never migrates, unless, as other fish, from deep to shallower and warmer water, in order to deposit its spawn. It follows from this that by overfishing, the herring of any locality may be greatly reduced or even exterminated, as has happened here more than once. Nothing, however, is more certain than that the herring dealers know the different localities of the fish, as easily as a farmer distinguishes a Cheviot sheep from a Southdown. The same holds good in Scotland, where they can tell at a glance a Lochfyne herring from one taken in the Firth of Forth, and a Tweed salmon from one captured in the Spey.

SPAWNING OF THE HERRING.

Gilbert White says, "the two great motives which regulate the brute creation are love and hunger; the one incites them to perpetuate their kind the latter induces them to preserve individuals." In obedience to these laws, the herring congregate

on our coasts, for there only they find an abundant supply of food to mature with the necessary rapidity their milt and roe, as well as a sea-bottom fitted to receive their spawn. They must have a rocky bottom to spawn upon, with a vegetable growth of some kind to preserve the roe. The herring shoal keeps well together till the time of spawning and having spawned, it breaks up, and then the herring leads an individual life. The same shoal will always gather over the same spawning ground, and the fish keep their position till they fulfil the grand object of their life. Before spawning they swim deep and hug the ground; after spawning, they rise buoyantly to the top of the water. It is worth noting that when they thus come within reach of man the herring are in their worst condition, so far as food-yielding qualities are concerned, because at the spawning season their whole nutritive powers are exerted in reproducing their kind, and their flesh is consequently lean.

HERRING FAMILY.

The family of the herring is rather extensive—the most prominent members being the common herring, the sprat, the pilchard, the white bait and anchovy. The pilchard is the sardine of commerce; but its place is often usurped by the sprat, and thousands of tin boxes of that fish are annually made up and sold as sardines. In France this practice is extensively followed—75,000 barrels of sprats being annually taken on the coast of Brittany, of which large quantities are done up in oil as sardines. It is now generally admitted among the best naturalists that the sprat are the young of the herring. However this may be, not less than 13,000 boats on the coast of Brittany are engaged in the sardine trade, capturing sprats, young pilchards and young herring for curing as sardines. According to Mitchell the sum of £80,000 is annually expended on cod and mackerel roe for bate in this fishery. From Newfoundland 964 barrels of cod roe were exported last year, the whole of which was forwarded to France for the sardines fisheries. In this country it is worth three dollars per barrel.

LABRADOR BLOATERS.

The herring of Newfoundland is nearly all pickled for exportation. Were there a ready means of communication established between Bay of Islands, Bonne Bay, Labrador, and the United States and Canada, one would fancy that a splendid trade might be established by curing the fine herring of these localities as "bloaters" and "reds." The "bloaters" are very slightly cured, and as slightly smoked, being prepared for immediate sale speedy consumption. The name "bloater" is derived from the herring beginning to swell or bloat during the process of curing. Small logs of oak are burned to produce the smoke, and the fish are all put on the "spits," which are run through the gills. Treated in this way, the Bay of Islands and Labrador herring would be a most delicious article. I think, however, I have given you enough about herring for one article, and may perhaps, return to the subject.

ADVENT OF THE MACKEREL.

Some forty years ago, old fishermen say the mackerel were so plentiful around our shores as the cod now are. But at once, however, they disappeared; but strange to say, they have made their appearance in considerable quantities, especially off the northern coasts, and, for the first time in

forty years, are sold fresh in the streets of St. John. They bring a high price—twenty cents each—and a barrel, pickled is sold for \$10. The quality is excellent. We are in hopes that the wealth of our seas is about to be increased by the advent of this splendid fish. The mackerel is known to be a wandering, unsteady fish, and is supposed to be migratory, though individuals are always found in the British seas; so that, like the herring, it will probably prove to be a native of the seas where it is taken. The mackerel are found along the whole European coast, as well as the coast of North America, and are caught as far south as the Canary Islands. In England they are taken by the seine net, though a great number are captured by means of well-baited lines. Any kind of bait will do for the mackerel hooks,—a bait of red cloth, a slice of one of their own kind, or any clear, shiny substance.

LABELLE FALLS.

Few of our smaller Canadian streams offer so many attractions to the artist and the lover of the beauties of nature as the North River, which waters the countrits of Two Mountains and Terrebonne. Rising in the high lands to the north-west of Abercrombie, this singular stream pursues a winding irregular course, now turning to the right, and now to the left, until it empties itself by two channels into the Ottawa. The whole course of the rivers some hundred miles in length; yet its source cannot be more than half that distance from the spot where it mingles its waters with those of the Ottawa. Its bed is rocky and uneven; in some places gradually shelving, and in others consisting of a series of rocky ledge-forming very beautiful falls. In one part, in the neighbourhood of the thriving village of St. Jerome, the river has a fall of 305 feet in a distance of three miles. This fall is caused by a number of long rapids, with a cataract here and there. The principal of these are the Sanderson and Labelle Falls, and the Scott Falls in the village of St. Jerome.

The Sanderson and Labelle Falls are formed by a long slope in the bed of the river, some three-quarters of a mile in length, terminated by a broad ledge of rock, over which the water pours with inconceivable impetuosity. The whole of the bed of the river, in this part, is covered by hugh boulders, over which the water seethes and boils in its course until it tumbles over the ledge, in one broad sweep, upon a ridge of boulders, where it breaks into hundreds of small spouts and falls, and then resumes its placid course. The height of these falls is 152 feet, with a breadth of 80 feet.

As yet the immense water-power afforded by the North River has not been fully utilized though several mills have been erected along its banks, both in the village of St. Jerome and at several other points along the river. The village is worthy of some notice, being one of the most thriving of the Lower Canadian villages. It has been in existence some few years, but has we believe, only been incorporated within the past few months. It lies on the left bank of the North River, in the county of Terrebonne, at a distance of some thirty-six miles from Montreal, in a north westerly direction. Built in the centre of a small wood, which encircles it like a belt, it offers a most pleasing aspect, and the visitors on entering it is surprised to find large well built houses, broad macadamized

streets, lined with beech and elm trees, and all the indications of a thriving, progressing town. Already a cloth manufactory has been established there, besides two flour-mills, two saw mills, two carding mills, and several very creditable stores. The water power at this spot is estimated at about 120,000 horse-power.—*Canadian Illustrated News.*

Arts and Manufactures.

BEEET ROOT SUGAR.

CAN IT BE PROFITABLY MADE IN CANADA?

(From the *Monetary and Commercial Times.*)

Before saying yea or nay to the question, we shall endeavour to show what has been done in similar latitudes across the lines, and what conditions are required for successful production.

We are not aware that any beet sugar factory as yet exists in the Dominion. The question was agitated a few years ago in Montreal; but the difficulty of getting a sufficient radius of country around that city, to engage in the cultivation of the root, was never surmounted. Some shrewd and enterprising gentlemen in the County of Wellington, Ont., are at the present moment, we are told, collecting information with a view to the promotion of such an enterprise. We wish them complete success, and shall be glad if, in this limited sketch, we may be able to give them any hints that will assist them.

Some 4 or 5 years ago, a New York gentleman, who had devoted some time and money to promoting the culture of the Sugar Beet in the States of New York and Pennsylvania, gave the following estimate of the yield of say a thousand tons of beets:

EXPENSES.	
1000 tons of beets at \$4 per ton	\$4,000
Estimates of manufacturing at \$5 per ton	5,000
	\$9,000.
RESULT.	
200 tons pulp, at \$2 per ton	\$ 400
30 tons syrup at \$20 "	600
60 tons sugar at \$250 "	15,000
	\$16,000
From which deduct expenses	9,000
Leaves a profit of	\$7,000

The values of the manufactured article were given at the New York prices, and the cost of the roots laid down at the mill apparently the same as they could be raised for in Germany, which is putting the case pretty favorably, we should think, considering the greater cheapness of labor in the latter country, and the common employment there of women and children at farm labor.

Beet Sugar manufacture may be said to have begun in the Western States in 1862. The civil war interrupted it; but in 1866, a new German company was established at Chatsworth, in the State of Illinois, with new seeds to plant, and new apparatus for refining, and in the autumn of the year they had 600 acres of beets growing. This experimental beet farm was carried on for several years with very indifferent success, but we find a statement in a very recent article from a New York

journal, that in Chatsworth, Illinois, "there has been a saving of nearly thirty per cent. over the results of the best German or French cultivation in the field work or cultivation of the beets, for they were put into the pit at \$2.70 the ton," the saving being effected by the use of machine instead of hand labor. The sugar produced here was pronounced by Chicago experts to be A 1 New York sugar, and brought the price of that brand. Assuming the other items of cost to be identical with what we have given above, and the different products salable at the same rate, we have here a profit of over 100 per cent.

"This result was reached, however, only after many disappointments and failures, caused by the unfavorable location first chosen by foreign management and insufficient cultivation. These have all been rectified, and time and experience have brought success. But what is possible in Southern Illinois may be forbidden to our higher latitudes; so let us look at one of the States nearer home. Our nearest neighbor and the one most nearly identical with Ontario in position, products and climatic condition, is probably Michigan, and this is what we hear of her experience in this matter.— "The farmers of Ingham County, Michigan, have for the past two seasons been planting the sugar beet as a test; a specimen of the beets from Michigan, analyzed, gives better promise than those of any other locality, except the Alvarado Valley of California." Now, the district mentioned is about the centre of Michigan—from west to east—and in the same latitude as the counties of Middlesex and Oxford and the Welland district, in Ontario, and half a degree north of Essex; and the question is naturally suggested—if so favorable a prospect can be shown in Michigan, what is to prevent an equally favorable result in the more southern part of our western peninsula? We have sorghum grown, and excellent syrup made from it, by the farmers of Essex; grapes, too, and grape wine from the same county; from Grimsby in Lincoln, and the Cooksville vineyard, in Peel. The Catawba wine of Kelly's Island is well known and abundantly used by the western lake cities, and vineyards are being planted in the adjacent Canadian island of Point Pelee, in Lake Erie. All the facts seem to strengthen the supposition that Ontario is favorably placed for experiments in so valuable an industry.

In the absence of American statistics, we quote from an English work the following, respecting European culture of the root: "In France, Germany, or Russia, 20 tons of root per acre is called a good yield, and one ton of sugar from 12 tons of root; but sometimes there is the far lower estimate of 1000 pounds sugar per acre, seeing that clumsy processes, as well as bad seasons, limit the yield. In 1864, there were 336 beet-sugar factories in Russia, 270 in the Germanic Zollverein in 1865, and 433 in France in 1866." The greater dearth of land and labor in Britain have prevented the extension of the manufacture there. The estimated quantity of beet-root sugar made in the three first-named European countries from 1865 to 1867, was over a million tons, and apportioned as follows:—

Zollverein	385,000 tons.
France	425,000 "
Russia	225,000 "
Total.....	1,035,000

It is proper to remark that these countries lie in latitudes considerably above ours. Bavaria, Saxony, and the other German Provinces that go to make up the Zollverein quota, lie in latitude, say 48 to 52, France some degrees lower, while Western Ontario is bounded by 42 to 44. But the question is not one of latitude solely: in fact there are so many conditions to be borne in mind, that we cannot pretend to indicate them in this article, but leave the matter for a time, in the hope that practical light may be thrown upon it by some of our agriculturist.

Poetry.

CONNUBIALITIES.

"Wilt thou take this brown stone front,
These carriages, this diamond,
To be the husband of thy choice,
Fast locked in bonds of Hymen?"

And wilt thou leave thy home and friends
To be his loving wife,
And help to spend his large income,
So long as thou has life?"

"I will," the modest maid replies,
The lovelight beaming from her eyes.

"And wilt thou take this waterfall,
This ostentatious Pride,
With all these unpaid milliners' bills,
To be thy chosen bride?"

And wilt thou love and cherish her
Whilst thou hast life and health,
But dieas soon as possible
And leave her all thy wealth?"

"I will," the fearless mate replies,
And eager waits the nuptial ties.

"Then I pronounce you man and wife:
And what I've joined forever,
The next best man may disunite,
And the first divorce court sever."

PUT YOURSELF IN HIS PLACE.

It's a very good rule in all things of life
When judging a friend or a brother,
Not to look at the question alone on one side
But always turn to the other.
We are apt to be selfish in all our views,
In the jostling headlong race;
And so to be right, ere you censure a man,
Just "put yourself in his place."

It is very hard to be just—to know
The reason another may give—
How much he has struggled and fought and striven,
How honestly tried to live;
How much been cheated—how sorely tried,
Ere the wrong he was led to embrace;
And if you would learn these things, the way
Is to "put yourself in his place."

There's many a man crushed down by shame,
Who blameless stands before God,
But whom his fellows have utterly scorned,

And made "to pass under the rod;"
Whose soul is unstained by the thought of sin,
Who will yet find saving grace,
And who would be praised where you now condemn,
If you would "put yourself his in place."