

FARMER'S ADVOCATE

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AND HOME MAGAZINE

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THE FARMER'S ADVOCATE —AND— HOME MAGAZINE,

WILLIAM WELD, Editor and Proprietor.

Circulation over 20,000 Copies.

THE FARMER'S ADVOCATE is published on or about the 1st of each month, is handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for dairymen, for farmers, gardeners or stockmen, of any publication in Canada.

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We would remind our many friends who wish us success, that there is hardly a post office in the land where a club of five or more cannot be formed by showing a copy of the paper to those interested in agriculture, and that we will gladly mail a specimen copy free to any farmer or gardener whose address is sent us.

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Our Monthly Prize Essay.

A prize of \$5.00 will be given for the best essay on "The Best Methods of Economizing Work on the Farm." Essays to be handed in no later than the 15th of July.

Sheaves from our Gleaner.

Rise early.
Shelter tools.
Milk regularly.
Weigh your milk.
No loitering, boys.
Minimize the chores.
No time for borrowing.
How about your fences?
Prepare for the big push.
Where is your whetstone?
Keep ahead of your work.
Where is your breachy cow?
Rest when the work is done.
Have you a good grindstone?
Don't let dogs chase the cows.
Don't overstock your pastures.
The best saving bank—The compost.
Keep eyes on insects and black-knot.
High feeding tends to produce barrenness.
The price of fruit—Eternal vigilance against insects and weeds.

Summer Meeting of the Ontario Fruit Growers.

The summer meeting of the Ontario Fruit Growers' Association was held at Berlin on the 24th and 25th ult., Mr. Wm. Saunders, President of the Association, in the chair. There was a good attendance of fruit growers and florists present. There was a fine display of the different varieties of strawberries and roses, contributed by various members of the Association. Several interesting papers were read, followed by lively discussions. The next meeting will be held at Barrie on the 1st and 2nd of October next.

MUTUAL MARRIAGE AID ASSOCIATION.—We have several inquiries about the responsibility of this association. The association has got into trouble, and will probably be wound up at once. The Government should require a substantial deposit from such associations, and also exercise frequent and most careful inspection of their management.

"We regard the FARMER'S ADVOCATE as a reliable and progressive live stock authority."
T. L. MILLER Co., Becher, Ill., U. S. A.

Editorial.

Green Manuring.

Green crops, applied as a mode of manuring, embrace the principle that the elements of fertility removed from the soil shall be restored. If the crop is plowed under the surface soil is enriched not only by the portion of the vegetation which grew above ground, but by the stores of fertility brought up from the subsoil by the roots. If the crop is grazed off by the stock the nutriment is restored in the manure, minus the small quantity laid up in animal increase—but the extra availability of the manure compared with that of the green crop may be a compensation for this. Soiling may be regarded as another mode, when the crop is fed off, either in the stall or in a yard, and restored to the field in the form of manure. The soiling system is the most profitable of the three modes, as the manure can be returned when it will accomplish the most good, and when there is the least liability for waste to be incurred. However, if the soil is conspicuously deficient in organic matter the most profitable method is to plow the crop under. Various compromises of the three systems may be made according to the quantity of organic matter already in the soil; the crop may be partly eaten off, partly soiled and partly plowed under. Every other system of cultivation is a process of green manuring on a small scale, the roots and stubble serving for the formation of humus; but in sandy or stiff-clay soils the quantity of organic matter produced in this manner, even with a liberal application of coarse manure, is often insufficient.

Before being able to thoroughly comprehend the importance of the subject, it will be necessary to understand the action of humus in the soil. Above all it is the source of nitrogen to the plant, without which vegetation could not exist. Vegetable soils being dark in color are great absorbers of solar heat, whereby they become earlier and more quickly warmed than other soils, giving earlier seeding and maturity. They have great absorptive power for ammonia; they improve the mechanical texture of clay soils, preventing the agglutination of the particles of clay, and increasing the cohesiveness of the sand. They admit air readily, which is necessary to maintain the chemical actions that should be continually taking place during the period of growth. Decaying vegetation also evolves gases which make the soil mellow, porous and light. Notwithstanding

all these advantages, there is a possibility of producing an excess of humus in the soil for profitable purposes, the percentage of available nitrogen required for most crops being very small.

In addition to the production of humus, this method has many other advantages over bare fallowing. The land is turned to profitable account, no crop being lost; the surface soil becomes enriched by accumulations from the subsoil and the atmosphere, and maintained in an insoluble condition, so that they cannot be washed away by the rain.

The Summer Fallow.

Most of the mistakes made in fallowing have arisen from an improper conception of its classification in agriculture. Every means of increasing the productiveness of the soil is usually regarded as a department of manuring, although in a strict sense a manure is that which supplies plant food directly to the soil. Many of the so-called fertilizers do not fertilize; some merely gather and retain the soluble plant food already in the soil, others only unlock it from insoluble combinations, rendering it available for the crop. The latter effect being produced by tillage, fallowing may be regarded as a process of manuring by which a fertile soil, aided by atmospheric influences, is forced to surrender its locked-up stores of fertility. However, within these bounds, the effects of tillage are as variable as the character of the different classes of soils. The stiffest clay contains at least 20 per cent. of sand—indeed, pure clay is just as barren as pure sand—and the cultivation of a clayey soil has the tendency of further disintegrating the minute fragments of rock of which it is composed, thereby improving its mechanical texture and increasing its absorptive and retentive powers. But clay soils are too cold and stiff, and contain only mineral food for plants; they require sand to destroy their excessive tenacity, and organic matter (humus) to make them more friable and to supply nitrogen to the plant. Small quantities of lime and other bases are also necessary, not only as sources of plant food, but also for their physical and chemical actions in the soil. Hence it will be seen that the loams are the most productive soils, and should be firm enough to support the vegetation, loose enough to allow the rootlet fibres to extend, open enough to admit air freely and allow the surplus water to drain away, and close enough to retain sufficient moisture. Now there is not a field operation of husbandry, whether tillage, manuring or drainage, but should subserve to these ends. If even one of the most unimportant elements of fertility is lacking, or exists in excess, the soil will be as barren as if it is water-logged, or contains its fertilizing elements locked up in insoluble combinations. We have seen that the tillage of clayey soils tends to set free the mineral constituents of their composition; the tillage of vegetable matter tends to make its nitrogen available, that is the oxidation of ammonia and organic matter into nitric acid.

Let us now take a more practical view of the subject. The reasons usually assigned for the necessity of bare fallowing are that it cleans the land and gives it a rest. That the soil re-

quires cleaning scarcely ever admits of doubt; but the question of rest is more complicated. If the soil craves for rest, it must have been overworked, not in the sense of being over-tilled, but, owing to a mismanaged system of cultivation, rotation, or manuring, its fertility has become exhausted; and the necessity for cleaning is usually proportionate to the inefficiency of the tillage. In such cases a bare fallow may make up for the lack of sufficient tillage in previous seasons; but we shall see that the wastefulness of the one extreme is only equalled by the unprofitableness of the other. When a soil contains all the elements of fertility, the amount of tillage required each season, providing no manure is supplied, is that which will provide a sufficiency of plant food for the use of the crop. The question now arises, What becomes of the excess of plant food produced by the excessive tillage of the fallow? In clay or clayey loam, and especially if lime is present, most of the surplus food will be retained by the absorptive power of the soil; but where organic matter is present, a class of valuable salts called nitrates is produced, which will in a wet season, especially if the soil is porous, be almost completely washed away in the drainage water. The whole question of summer fallowing therefore resolves itself into this, that it can only be carried on with safety in a clay soil and in a dry season.

From these facts the conclusion may also be drawn that where weeds abound fertility should be produced by regular and thorough cultivation; whereas in fields free from these pests the soil can be more permanently enriched by a regular application of manure with less tillage. It will also be seen that the coarser manures should be applied to the stiffest soils, and the finer to those which have sufficient porosity.

Shearing Twice a Year.

This question has been agitated on both sides of the line; and, like many other agricultural questions, its enthusiasts have gone to the extreme. The arguments sound very well in theory, but what the farmers are most concerned in is how it will work in practice. Between the middle of July and the middle of August, when the second shearing should take place, is just the time when the farmer has not a single day to lose without risk in the harvested condition of his crop, and the procuring of help is usually out of the question. Again, the average farmer has not yet that accommodation for his sheep, which would be indispensable, incident to the necessity for early lambing and early shearing, say in March. Extra attendance would be necessary, and in case of thoroughbreds, possibly also considerable nursing, for two weeks after lambing and shearing, especially if the weather is damp and the accommodation inadequate; but the question of time here favors the other side of the argument, as the usual time of shearing and lambing interferes with the spring work. We do not doubt the profitableness of shearing twice a year in cases where sheep husbandry is made a specialty; but the small farmer should not enter rashly into the enterprise.

Leaving the farmer to make his own calcula-

tions with regard to accommodation and climate, let us show the results of a few figures. The lamb of a medium woolled breed dropped in March will clip at least 3½ lbs. of wool in July, and being lambs' wool, it will bring about two cents a pound more in the market than other wools. Under a good system of management this lamb will shear very nearly as much the following spring, say in March, as if it had not been clipped the previous summer. The reasons are obvious. In the first place the wool will grow closer after the first shearing, and under a less burdensome fleece, the lamb will thrive better both during the hot weather and along through the autumn and winter months, the perspiration from the body not being so profuse. Experiments have proved this. Now let us suppose that a farmer has 20 sheep, and from this basis let us compare the merits of the two systems. Under the existing plan of clipping once a year, ten shearlings shorn in May would produce about 9 lbs. of wool (unwashed) each, or a total of 180 lbs., which at 18c. would bring \$32.40. Under the other system these as lambs shorn in July would clip 3½ lbs. each, or a total of 70 lbs., realizing at 20c. a pound, \$14. At the second clip in March they would produce say 8½ lbs. each, or 170 pounds in all, which at 18c. would bring \$30.60. Adding this amount to the \$14 we get \$44.60, or a difference of \$12.20 in favor of shearing twice a year. Every farmer can easily try the experiment for himself by shearing an early lamb or two this summer, and comparing the results with other lambs next spring.

The U. S. Government has spent \$25,000 to introduce tea culture in the Union, and the enterprise has proved a disastrous failure. This should serve as a warning against attempting to raise products in a country in which they are not adapted.

A prevalent error amongst farmers during this season, is the eating of curd. It must not be supposed that it is as good as the cheese which is made from it; for it is almost entirely indigestible, while nearly the whole of the best made cheese is digested, although the inferior classes do not contain a large percentage of digestible matter. As food the curd is the most valuable part of the milk, but it requires the action of rennet before it is fit for use. All the constituents are in the best condition for assimilation in the new, warm milk.

Many farmers who keep native stock and a few thoroughbreds, have the habit of giving their best feed to the latter, allowing their "scrubs" to put up with any kind of food and accommodation—shifting for themselves, as the saying is. Barring the fact that it is unprofitable to feed any animals, "scrubs" or pure breeds, which do not come up to a certain standard of production, it should be remembered that if these conditions were reversed for a few generations, the natives would vastly surpass most of the existing thoroughbreds for the dairy, while the latter would degenerate to be worse than the "scrubs." The shortest and cheapest way to attain the best results is to improve the natives. They have the right foundation for our climate and conditions.

Washing the cattle's backs occasionally with brine during summer will prevent the attacks of the gad-fly and destroy the grubs.

"For stamina and endurance Canadian horses are probably unequalled," says Mr. Dyke, the representative of the Canadian Government, at Liverpool.

Great Britain claims that with proper irrigation wheat can be produced in India for less than a shilling per bushel. She is about to grant \$15,000,000 more money for extending railways to the best producing points of that country. The British lion does not like to depend upon the American eagle for its daily bread.

Tables are often published showing the respective merits of the different breeds of cattle with reference to their dairy products. If the Shorthorn, for example, heads the list, the impression gets abroad that this is the most profitable dairy breed. This is very misleading. The animal that produces the most with the consumption of the least food yields the most actual profit. If two Jerseys consume the same quantity of food as one Shorthorn, it would be more reliable to make the estimate of the two Jerseys against the one Shorthorn.

Many liquid nostrums are drunk by the farmers in the harvest field for the purpose of driving the heat away, or perhaps for attracting the breeze. There is nothing simpler and better than fine oatmeal put in pure water. This will be nourishing as well as cooling and thirst-quenching. If there is any suspicion about the purity of the water, it may be boiled and the meal put in while hot, then allowed to cool over night. Lemon juice, raspberry-vinegar or other flavoring may be added if desired. Of course stone jars are best for keeping the drink cool.

In June the grass is more nutritious and usually also more flush than later in the season. July and August are the most trying months, especially if the weather is sultry and dry. The milk gets scanty and bad, and some farmers wonder what is the matter with the cows. In such cases the water usually becomes unwholesome, shade trees are lacking in the pasture, and the cows are compelled to take too much exercise by continually roaming in search of grass. Any falling off in the yield of milk can seldom be regained later in the season. The only profitable remedy is found in soiling.

Horses become slothful and weak when fed on foods containing an excess of starch, such as corn; in fact all bulky foods, which must be consumed in excessive quantities in order to get the necessary supply of nutriment, have the same tendency. When horses have a sense of fulness in their stomachs, they are not in a condition for work; they should therefore receive but small quantities of coarse food during the day time. Now let the farmer apply this principle to himself. He lives on too starchy or bulky food; let him now ask himself how he likes to work when he feels like exploding from extreme expansion.

The wheat prospects in India are good. The yield is expected to reach over 240,000,000 bushels.

In the Northern States it costs \$33,000,000 annually to replace the sheep killed by dogs. No statistics have been compiled respecting the cost in Canada.

The shipment of American hogs into Manitoba is forbidden, except under regulations providing for their immediate slaughter. For all hogs entered under such regulations a bond must be given as a pledge that they shall be slaughtered immediately.

The number of Jerseys, Shorthorns and Holsteins sold by auction in the United States during 1883 add up as follows: Shorthorns, 3284, at an average of \$205.56; 239 head of Holsteins, at an average of \$273.60; of Jerseys, 1688, which brought \$409 each.

In weaning the lambs see that they get the best pasture, leaving the barest possible field for the ewes. If possible put them out of hearing distance from the dams, otherwise both will suffer from excessive bleating and fretting. See that all parasites are removed from the lambs.

The United States raises 48 bushels of grain per head of its population, and consumes 41 bushels per head. In both cases it takes the lead of all other nations. Italy consumes but 9.62 bushels of grain per head, Austria 13.57, Spain and Russia 17 each, Denmark 30.83, France 24.02, and Canada 33.11 bushels per capita.

Young trees whose branches are not large enough to shade the ground should be mulched around in a circuit as large as the circumference of the branches. The mulch should never come into contact with the trunk of the tree, and should be spread an even thickness over the ground, leaving no less than six inches between the mulch and the tree, which space, if filled with dry coarse sand or fine gravel, will be proof against the borer. The trees that were planted last spring have not yet sufficient root hold, and require protection from the piercing rays of the sun as well as from drouth and the injurious effects of weeds. All this can be effected by a liberal use of mulch.

The Springfield Republican makes the following allusion in reference to the fancy stock craze, the reference applying specially to the Jerseys:—"There is an inside to the great combination auction sales of imported and domestic stock in cities, that the buyers are not fully admitted to. Country animals are sent there to be washed, shampooed, combed, groomed and plumped by skilful hands, days and weeks before the sale, and then under the glare of an electric light in the excitement of a crowd, the wily auctioneer caps the climax with figures of speech that entrap the unwary. This is a 'gambling in stocks' that is literal, as some have found to their sorrow. The wonder is that some of the agricultural papers, that are usually sensible, should sell themselves so cheaply in abetting the swindle."

On the Wing.

PRINCE EDWARD COUNTY.

There always appears something bewildering when speaking or thinking about this part of Canada, as it resembles Prince Edward Island in many ways besides the name. The county is nearly surrounded by water, the Bay of Quinte almost cutting it from the mainland. Prince Edward Island is on the Atlantic coast some miles distant. Picton is the county town and port from which the vessels sail to the Island. They are both deservedly noted for their lovely, charming resorts, for their fine fishing grounds, for their peaceful, contented and happy population, and for the hospitality of their inhabitants. They have some very fine farming lands and some lands of a light nature. Both places are deservedly popular with pleasure and health seekers. We commend a trip from Belleville through the Bay of Quinte to Alexander Bay, as the finest fresh-water trip we have yet experienced on this continent; and for health, peace and quiet hospitality on the salt water, Prince Edward has charms to us in excess of the attractions of the ball-room or theatre, or the beauty and excitement of Saratoga. But tastes differ. If you can afford a trip for health or pleasure, just remember the name, "Prince Edward,"—either the island or the county.

It is to Prince Edward County we wish to call your attention at the present. It is comparatively isolated and but little heard of, and yet it has set before us such lessons that it would be well for every farmer and every legislator in this Dominion to consider and copy. In the Township of Ameliasburg they have the most successful Township Agricultural Society we have yet heard of in Canada, although only a small place and inconvenient to approach. Such is the popularity of the Ameliasburg Agricultural Society that the attendance has yearly increased; last year over 10,000 people attended the fall exhibition. It has grown gradually every year. No improper exhibits are allowed; neither is it allowed to become subservient to any party or sect. If a person obtains a prize at this exhibition, people are satisfied that it is obtained on its merits. Would it not be well if this could be said of all exhibitions? A great secret of the success of this Society consists in a by-law passed by the Society many years ago for the simultaneous election of a Reformer and Conservative as President and Vice-President. Thus, a Conservative President, who acts but one year, is succeeded the next year by the Vice-President, who is a Reformer. The successful working of the plan sets aside all theory averse to it. Would not the managers of the Provincial and all other exhibitions act well in inquiring into the workings of the Ameliasburg Society, and comparing the good work performed by it with the large sums of money granted nominally for the benefit of agriculture?

This township has another interest to boast of in advance of any other in Ontario we have heard of, namely, the introduction of the latest appliance for separating the cream from the milk, by means of the rotatory system. Mr. John Sprague has introduced the De Laval Separator into his dairy, and is highly pleased

with the investment, considering the system of rapid separation of the cream from the milk as the best of all recent improvements in the manufacture of butter. He considers that under favorable circumstances, a gain of 25 per cent. may be made by its use, that the butter is cleaner and better made from the cream by this process than by the old process, and that the advantage of having new and sweet milk to be used for cheese-making, for sale or for other use, is a very great desideratum. So well pleased is Mr. Sprague with the process and working of the De Laval Creamer that he expects to get another one before the end of the season.

Ameliasburg has some natural advantages which peculiarly adapt it to dairying, having good pasture land surrounding a remarkable lake, named after the person who first discovered it, Roblin Lake. It covers about four hundred acres, and is in many places so deep that an eighty-foot line has not touched the bottom. The water is cold, and so clear that one can see ten feet deep into it. It has no known inlet, but is fed from some underground source supposed to come from Lake Superior, or some other of the large and more northerly lakes, as the water in these lakes stand between 100 and 200 feet above Lake Ontario, although it is only distant from the latter about fifteen miles. This pond was formerly well stocked with bass and trout; but some of the inhabitants thought to increase the sport, and put in a pair of young pike, and in a few years the pike destroyed all the other fish. Now the inhabitants are trying by every means to destroy the pike; they catch them by the ton, but there are no signs of diminution. The pike taken from this lake are of a much darker color and finer quality than those taken in Lake Ontario. Must not this water be of very great importance in making the finest of butter? Water is of different quality, and the purest is necessary to produce the best quality of dairy products.

While passing through the township we noticed that the crops are generally looking well—better than in the west—although some of the land is rather light. The most marked difference was to be seen in the fruit prospect. The apple trees were all overlaid, and the small fruits were most promising, as the frost had not injured the fruit in the county, the surrounding water retarding the early growth and modifying the atmosphere. We understand that the apples grown near the water have a much finer appearance than those grown near the centre of the county, or further away from the water.

TURPENTINE AND INSECTS.—Turpentine has so strong an odor that it will prevent depredations of most insects, and on a small scale is one of the best applications that can be made. It is said that a corn-cob dipped in turpentine will keep cucumber and squash bugs from the hill to which it is applied. If hung in plum trees it will prevent attacks of the curculio.

Mr. W. J. Fowler suggests the need of knowledge of insects in warring against them, else you may destroy the friendly ones, since they are not all enemies.

Hints on Flower Gardens.

Canadians are as a rule a flower-loving people, and to a large extent, appreciators of the beautiful in nature. In their efforts in laying out for themselves gardens, however, it must be admitted that in that kind which affords a constant succession of beauty, both in blossom and leaf, they have thus far failed, there being but few gardens in the country which have come in any way near the Canadian's ideal standard of excellency.

The cause of failure is attributable we believe, not to a lack of means nor the want of suitable plants, but rather to a lack of knowledge of the principles or ground work underlying the truly beautiful. There is such a things as harmony of colors, which may be said to be produced by so arranging colors complementary to each other in such a manner that the one color helps to set off its neighbor to the best advantage. We see this harmony of colors in the rainbow, in the pansy blossom, in the wings of butterflies, in autumn leaves, in all those combinations of colors where arrangement underlies the superstructure. Want of arrangement and want of proper selection in the plants are the two most prolific sources of failure. However elegant or artistic the design of the garden, that design becomes valueless when badly planted so as to conceal its merits, or filled with a selection of plants, which, from their coarse or ragged habits of growth, or their remaining in bloom but a short time, give the whole a confused and meagre effect. If it is the object in a flower garden to afford a continual display of beautiful colors and delicious odors, we conceive that all plants should be neglected except such as combine almost perpetual bloom with neat and agreeable habits of growth. From our roses we might select Bourbons, Perpetuals, Bengals, etc., which offer an abundance of blossoms and fine fresh foliage; and from our annuals we might select Portulacas, Verbenas, Petunias, Mignonette, and the like, which are always in bloom and fresh and pretty in habit.

What painters would call "breadth of effect" may be produced by doing away with the too common practice of intermingling species and varieties of all colors and habits of growth, and substituting a grouping or massing of colors and particular species of plants. Masses of crimson and white, of yellow and purple, and the other colors and shades brought boldly into contrast, or disposed so as to form an agreeable harmony, make a much more forcible and pleasing impression than can ever be produced by a confused mixture of shades and colors nowhere distinct enough to give a decided effect to the whole.

We can see no reason why from our thousand varied hues we may not be able, by a judicious selection of plants, and with a knowledge of the principles of complementary arrangement, reproduce in the flower garden, rainbows, enlarged pansy blossoms, butterfly wings, &c., &c., which afford us an unlimited supply of excellent models for our imitation. We would also note that whereas too much bare soil too commonly meets the eye in the average flower bed, resort may be had to the but recently improved plan of using a well kept, close cut turf to cover the heretofore bare and unsightly soil. Keeping the gravelled walks well filled with fine gravel also adds to the beauty and attractiveness of the garden, and should not be neglected, a trench being no object of beauty nor "a joy forever."

Special Contributors.

A Chatty Letter from the States.

[FROM OUR CHICAGO CORRESPONDENT.]

One of the features of the western cattle and land trade which is attracting a good deal of attention just now, is the absorption of vast tracts of Government land by huge capitalists and especially those from abroad who take everything from and bring nothing to the country. This matter is briefly referred to by the Mark Lane Express as follows:—

"Considering the wholesale appropriation of American land by British capitalists that has been going on lately, it is quite time that something should be done to stop it, otherwise all the evils of our land and tenant system will soon be rampant in that country."

The extent to which valuable lands have been taken by the railroads, and by large syndicates, is not generally realized, and in the name of the small farmer and stock raiser, it is high time that something were done to put a stop to this shameful monopoly of the best and most available lands.

The whole tendency of the western stock raising business is to concentration, and the small concerns are being pushed to one side.

There has of late been a scarcity in the far western country of young stock cattle, and many thousand cattle from the States have been taken to the Territories. Some of these cattle have stood the colder climate fairly, but the great bulk of them have suffered much, and losses have been very heavy. On the plains, as a rule, no pretensions to feeding are made, and if cattle are not good "rustlers," that is, are not able to hunt around and dig the grass out from under the snow, travel long distances for water, etc., they fare poorly. It is the practice of nearly all ranchmen to put up a little hay in stacks to feed to saddle horses, a few fine animals, etc., during the winter. The native herds do not expect anything of the kind, and travel off to find their own food; but when the young cattle from the States which have been used to being called up to the hay stack and fed—when they see these tempting stores of provisions and know nothing about rustling for their living, they are very apt to congregate around these fenced straw and hay stacks and starve rather than go off through the storm. The reports from the range country where these young cattle have been tried, are rather conflicting this spring. Of course, each owner generally tries to make his losses during the winter appear as light as possible. With regard to the young States cattle, it is an amusing fact that hardly a single ranchman can be found who has lost any of these cattle, but nearly all of them have neighbors who have suffered severely.

There is a good deal of risk in acclimating young cattle taken from the older States to the west and southwest, and owners are rather chary about trying it again this year so freely as they did last.

In these days when wool is so very abundant and cheap as to make farmers complain seriously, it is easy to find forcible illustrations of the value of combining mutton raising with wool-growing. Those farmers who are able to shear their sheep and send good fat carcasses

muttons to market, are decidedly ahead of the larger number who neglect everything about their sheep husbandry but the wool product.

In the State of Texas there has been an increase of about 5,000,000 sheep within a year or so, but for all that Texas is hardly able to raise a decent leg of mutton. It is true that Merino sheep are the most profitable in that country for the reason that they do better in large herds or bands than the larger breeds of sheep, but it is also a fact that Merino sheep when fed, make very much better mutton than generally supposed. It would pay to cultivate large carcasses, and provide feed for making mutton. As it is there is absolutely no attention paid in that State to the mutton feature of the sheep, and the shepherds by that means throw away a very large share of their profits. If the railroads did not discriminate against sheep so much by refusing to haul them in double deck cars, there would doubtless be a better development in the Southwest of the mutton industry, but at present nobody ever expects to see mutton sheep from that quarter. But the growing necessity for making the very most out of everything at hand is compelling farmers to see the folly of wholly ignoring the mutton quality of their sheep.

Within the past few years there has been an immense amount of capital attracted to the business of stock raising, and some have been free to predict that it would be only a little while until the thing would be seriously overdone and a heavy and disastrous reaction set in. There is a very strong tendency among farmers and capitalists also to overdo certain branches of trade and industry that seem to be paying well, but it surely cannot be said that the business of stock raising has been at all overdone yet. In certain lines of breeding there has ceased to be any profit compared to what was reaped a few years ago, but taking the whole country over there never seemed to be less danger of overstocking than at the present time. The fact is, the increase in population is at present greater than the increase in herds and flocks.

That there is already a surplus of shabby fine stock, one only has to watch some of the public sales of the country to be convinced; but there is not an abundance of genuine fine stock.

It is charged, and with some reason, that many of the sales of the country are between certain interested breeders who are anxious to have high prices recorded, and who do not hesitate to resort to unfair means, directly or indirectly, to accomplish the desired end. There are doubtless a good many fictitious sales made in public.

The dishonest means to which stockmen will resort for the sake of their purses are surprising to many who are unsophisticated. The temptation to by-bid at sales and cheat in various cruel ways at fairs, seems to be greater than many of the so-called "best" stockmen of the country can withstand. Let it not be understood that stockmen are any more dishonest than others; for if any difference the reverse is true; but there are by far too many of them who do not hesitate to resort to ways that are dark and tricks that are vain. Not a few cruel, miserly scoundrels resort to the mean practice of heavily salting their stock just before mar-

keting and then denying water until they are sold, so that they will take in a heavy "fill" to cheat the buyer. It must be said, however, that this practice is so abominable in the eyes of all, that men who resort to it are generally repaid in some way for their dishonesty and cruelty.

A general survey of the live stock interests of the continent reveals the fact that they have seldom, if ever, been in a more flourishing condition than now. Our herds are improving and increasing, and thoughtful, industrious breeders and feeders are prospering finely. It is becoming more and more apparent that the farmer who does not raise stock fails to secure a large share of the pleasure and profit which comes from diversified agriculture.

Cooking for Harvest Hands.

BY MRS. W. R. SHEPPARD, BELHAVEN.

My experience on a farm has been comparatively short. Until I was married (seven years ago) I knew nothing of farm life, but observing the sameness with which farmer's wives prepared their meals, it has led me to the conclusion that they do not live as well as they ought, depending too much on salt pork, which seems to be the staple meat of almost every farm house. Were farmers to buy a little fresh meat occasionally, they would find it far more healthy, much nicer and very little more expensive. Then, again, let them plan to kill a lamb or two; if they have not available means of keeping it, if three or four would agree to kill one each consecutive week, and exchange quarters, it would prevent any waste. With very little trouble and expense every farmer might have ice in summer. If the cellar is provided with an ice chest, meat, etc., can be kept fresh for some time, and butter also is so much nicer when kept cool, and would bring a higher price at the market. There are too few eggs eaten by farmers' families. Much might be said of their nutritious value, as is proved by analysis and also by actual experiment with laboring men. Some of our principal vegetables are too late to use in harvest; still, we have beans, peas, dried corn, etc., which are strong and healthy food if properly cooked; and bread should be at least two days old before using. And I think there might be some improvement in the general management of poultry. If provided with a warm house and proper food, hens will lay most of the winter, and early broods of chicks and ducks might be ready for the table in July. I have chicks hatched in February now ready for use. I give my hens scraps of meat, bones, cold potatoes, apple parings, milk, and a little grain. I will give a few ways I prepare some of my dishes: A cheap pudding can be made by gradually stirring flour in boiling milk; when quite thick add two or three eggs and a little salt, then boil ten minutes; to be eaten with cream and sugar, and if any is left it is nice to slice and fry for breakfast. My mode of cooking beans is to boil three hours, then add small piece of pork, boil one hour, then pour in a bake pan, add pepper, salt, etc., with a little pork fryings; bake half hour. I use corn-meal in porridge, puddings, cakes, etc., and I might also say the same of oat-meal, pearl barley and rice; rye and graham bread I use instead of all fine flour. The different kinds of vegetables I use as they

come in season. My dairy is not large, but I manage to have a few cheese ready by harvest. Much might be said on the different ways of cooking, etc. I subjoin a schedule of my meals for harvesters for one week:—

BILL OF FARE FOR ONE WEEK.

Monday, Breakfast—Ham, eggs, potatoes, bread, butter, apple sauce, rhubarb pie, coffee. Dinner—Boiled pork, dried beans, potatoes, tomato sauce, pickles, catsup, rice pudding, bread, butter, tea. Supper—Sliced corn beef, boiled pearl barley, bread, butter, plain cake, gooseberries, berry pie, tea.

Tuesday, Breakfast—Fried pork and onions, potatoes, bread, butter, cold rice pudding, apple sauce, coffee. Dinner—Roast chickens, potatoes, green peas, beet pickles, pearl barley pudding, bread, butter, milk. Supper—Dried beef, corn cake, cheese, bread, butter, berries and cream, apple pie, tea.

Wednesday, Breakfast—Fried pork, potatoes, buckwheat pancakes, syrup, bread, butter, pumpkin pie, coffee. Dinner—Roast beef, potatoes, green beans, deep cherry pie, bread, butter, tea or water. Supper—Cold beef, rye and fine bread, butter, cucumbers, apple sauce, berry pie, tea.

Thursday, Breakfast—Ham, eggs, potatoes, bread, butter, rhubarb and pumpkin pie, coffee. Dinner—Corn beef, potatoes, green peas, bread, butter, bread pudding, tea or water. Supper—Cold pork, graham biscuit, cheese, bread, butter, cherries, berry pie, tea.

Friday, Breakfast—Fried pork, potatoes, biscuit, bread, butter, apple sauce, pumpkin pie, coffee. Dinner—Mutton pie, potatoes, onions, boiled green beans, beet pickles, bread, butter, milk or water. Supper—Cold pork, oat meal porridge, bread, butter, tomatoes, plain cake, apple sauce, tea.

Saturday, Breakfast—Ham, eggs, potatoes, corn bread, apple sauce, bread, butter, currant pie, coffee. Dinner—Irish stew, composed of vegetables and meat, batter pudding (sweet sauce), bread, butter, apple pie, tea. Supper—Dried beef, cheese, bread, batter syrup, biscuit, cherry pie, apple sauce, tea.

Sunday, Breakfast—Toast, eggs, bread, butter, cherries, custard pie, cake, cheese, coffee. Dinner—Cold ham, bread, butter, deep gooseberry pie, with cream, cheese, cake, tea or water. Supper—Bread, butter, fruit, sponge cake, currant tart, fruit cake, tea and coffee.

Mr. Jas. Fletcher, the well known Ottawa entomologist who has made a study of the subject, has been authorized by the Minister of Agriculture to investigate any "insect plague" amongst our agriculturists and horticulturists, with a view of suggesting remedies to counteract the great injury done by means of insect pests. It is expected that all persons interested will afford Mr. Fletcher every assistance in their power to enable him to prosecute his investigations.

The average weight of Texas sheep (clipped) is 80 lbs. per head.

Lubricate your wagon axles, first removing all the grease and grit.

One farmer in a thousand gets ahead of his work sometimes, but none has ever been smart enough to get the start of his weeds.

The shipment of butter from New Zealand for the British market is satisfactorily evidenced by the arrival in London of several consignments of 800 casks each. The butter is kept in cold-air chambers, at a temperature of 38°. It sells readily at twenty-two cents a pound, and there is every probability of a large increase in the trade.

Poultry.

Laying Results.

We clip the following from the English *Live Stock Journal*, which we trust will be read with interest by our fanciers:—

"We have received the following return of the laying of the various breeds of fowls on a large farm in the south of England. It will be seen that the return is for nine months (January to September), and though we should have been glad had it been for the whole year, it is sufficiently clear to indicate the laying values of the various breeds. Brahmas, however, suffer considerably, as they were used for sitting; and had the return been for a year they would have come out stronger. Andalusians are the highest in the scale, but they were all pullets. The Black Hamburgs are the next in order, and were all hens, one year old and upwards. The year before this they were the best, and the owner considers that if they had been a fair proportion of pullets, they would have been before the rest again. White Leghorns come third—three hens and two pullets; Minorcas fourth; Brown Leghorns fifth:—

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Average per Hen.
No. of Hens on each run.	178	282	283	276	170	200	104	163	211	70.6
Light Brahmas (used for sitting)	6	83	176	150	138	75	132	88	58	48.1
Dark Brahmas (used for sitting)	20	110	86	150	138	107	90	70	16	66
Colored Dorkings	15	50	49	78	26	17	34	14	8	86.1
Silver-grey Dorkings	2	50	62	112	88	47	61	52	26	74.3
Plymouth Rocks	5	50	62	112	180	210	42	69	32	130.2
Black-red Game	5	50	62	112	146	145	42	69	32	130.2
Minorcas	38	80	85	101	79	82	116	76	68	171.1
Black Hamburgs	10	119	227	283	112	122	162	153	153	151.6
White Leghorns	5	120	100	104	91	85	84	48	9	127.5
Brown Leghorns	39	69	136	140	138	111	81	33	22	87.4
Houdans	3	63	69	67	63	65	60	43	5	94.2
Crevecoeurs	4	23	23	33	17	15	41	10	10	71.1
La Fleche	4	23	23	33	17	15	41	10	10	71.1
E. R. G. Bantams	4	23	23	33	17	15	41	10	10	71.1
Burkes's hens (used for sitting)	24	42	42	387	242	297	218	262	213	132.1
Atterbury Ducks	3	45	23	74	56	25	64	38	5	23
Rouen Ducks	4	45	23	74	56	25	64	38	5	23
Guinea Fowls	2	13	13	20	12	10	10	29	27	68.1
Toulouse Geese	2	86	134	54	..	..	..	..	..	22.1
Various Crop Eggs	..	..	..	..	..	..	..	..	..	..
	170	862	1700	2416	2401	1741	1070	1303	888	

170 hens have laid 15,234 eggs during the nine months named above.

TIMELY HINTS.—Keep weeding out all but the most promising chickens, and see that they have plenty of shade, cool water and regular feeding. Don't keep birds which have nothing but beauty to recommend them, unless you prefer ornament to use. Some of the older birds will soon be moulting; if they attempt to sit don't prevent them, as this will hasten the process. Remove the cock as soon as the new plumage appears. If the eggs are to be preserved in winter, they may be preserved in salt. Observe cleanliness, and don't let the food turn sour.

The Dairy.

Ripened and Sour Cream.

BY JOHN GOULD.

At one of the Farmers' Institutes which are held in fifty of the eighty counties of the State of Ohio, each winter, the question was asked the writer, to "explain the difference between 'ripe' and 'sour' cream, and wherein the product differed?"

This is a question that is being asked almost universally, and while many may not fully grasp all the minutiae of the chemical changes involved, yet some things can be premised and an insight gained. The briefest answer to the question would be that by bringing the cream all under the corroding influences of the free oxygen of the air, the element or elements that go to produce carbonic acid gas are liberated, and their place occupied by the oxygen. Then this changing of carbonic acid gas for oxygen would liberate a fraction of the moisture of the cream, and this is the change we call ripening, as distinguished from souring, as produced by the development of the gas within the cream.

The usual plan of souring cream so that the lactic acid development is pronounced, is to produce a disintegration or breaking up of the elements that compose the cream and giving them different characteristics than which they originally possessed, and at the expense of the quality of the goods, though to some tastes the sharper flavor of the acid cream is preferred; but this last is not the point we wish here to consider.

If all oils and fats composing the compound known as butter, were acted upon alike, and in exact proportions, the souring of cream would not be attended with the damaging effects that now exist; but, according to Prof. Völcker, the ferment of souring breaks up the fats and gives the acids that are evolved each a distinct odor, and when the strongest—butyric acid—predominates, the butter becomes worthless as a table luxury and known as rancid.

In contrast to the carbonic acid development of sourness and the condition produced by "ripening" cream by subjecting it to the oxygen of the air by exposure, there is no "breaking up" of the parts or bringing out distinct odors by the action of acid, but on the contrary, the natural flavors are heightened, and the most volatile of the flavoring oils that gives new milk a "raw" flavor, is entirely removed. These facts may be considered as conclusive, as new milk put through the centrifugal machine as soon as possible, and the butter made from this cream immediately, has the characteristics of the finest ripened cream butter. There is also a certain gain in butter product over the sour cream, which, while we have no conclusive proof, it is fair to presume that the increase does not all come from the greater amounts of butter fats extracted from the cream, but in part from securing all the butter fats in the cream for the butter, and in not having them neutralized by the action of acid.

It is not necessary for a person to be a profound chemist to make good butter. Observation and experience in a general way are quite as practical for the average dairyman. By watching the tendencies of the market, the methods of the best makers, and above all, cause and effect in the dairy, one can soon find

out whether the butter made from cream "ripened" by frequent stirring to air it, and the butter from very sour cream, is most productive in pounds of butter for gallons of cream, and whether the consumer is as well pleased with the one as with the other. By instituting inquiries and experiments, varying the usual practices of a generation with some of the newer innovations of the present day, the best methods may be soon arrived at, and when recognized, they can always be profitably adopted by the dairyman, being modified or enlarged upon as the occasion or circumstances warrant.

In making "ripened" cream butter one is liable to fail at last in the final working of the butter. By maintaining even temperature throughout the operation, and thorough expulsion of the caseine at the time of freeing the butter of the butter-milk, is the only escape. Handle the cream as "learnedly" as one may, the butter may at last be ruined by traces of the butter-milk charged with caseine remaining, for airing the cream has not neutralized the caseine, and a chemical change will come to this element, however small the quantity, if left behind, and the lactic acid ferment of this element will assert itself, and communicating itself to the fats, performs the same destructive "breaking up" that was detected in the excessive souring of the cream. Then the only plan to avoid this last "calamity," is to wash out the granulated butter with washings of weak brine, as salt has an affinity for some of the elements existing in butter—not pure butter fats, but as the compound, and water has the power to dissolve and absorb caseine, as well as the milk sugar, so that with washing and drainage, and a final salting of the butter when the butter granules are abundant in moisture, there is an almost absolute certainty in the removal of all substances which prove injurious to butter. Let the cream be sweet, ripened, or sour, the removal of the butter-milk with washings of brine is one of the most important things that can be introduced into butter-making, and is a step that anyone can take with manifest improvement in the character of the goods, let the handling of the cream be what it may.

In the States the custom is now almost universal among the factories to churn the cream in the ripened state, and wash out the butter, and it is observed that dairymen everywhere in private dairies are adopting similar methods, and with an improvement in the butter that cannot be gainsaid.

The cows will now be seeking shady places, and in their anxiety to find them they will slack off in milk. If you have no shade trees in the pasture it would actually pay to erect a temporary frame structure.

Oleo, must go. New Jersey has followed New York in passing a law prohibiting the manufacture and sale of oleomargarine. The constitutionality of this law has been sustained by the Supreme Court of Missouri.

The breeder deserves more encouragement than the importer. The object of the former is to improve the productive power of his herd; the object of the latter is usually to make booms and money.

Milking.

Cleanliness is often lauded in reference to milking, but few appreciate the extent to which it may be applied. To keep the hands, teats, and milking utensils clean, is by far not all. It should not be supposed that it will do to strain out any refuse that may have fallen into the milk. Odors cannot be strained out. Milk being very susceptible of unpleasant odors, a double precaution is necessary—even more, for these odors cannot be prevented from affecting the quality of the butter or cheese. The foul gasses from the droppings of the cow, and even the breath or emanations from the skin, may often prove deleterious, particularly in warm weather. For these reasons the cow should be milked as quickly as possible. There are also many other reasons why the milking process should not be delayed. The cow sometimes becomes irritable and skittish, especially by a new milker, by unusual alarms, or by unnecessary delay, and she then refuses to let down her milk. The milking qualities of many fine cows have been depreciated in this way. Unkind treatment has a still more injurious effect. If a cow is naturally timid, a good plan is to give her something relishable to eat during the process of milking. This will also entice her to come home and willingly submit to be milked. Regularity in feeding and milking are greatly to be desired for similar reasons. Natural viciousness or depravity may be blamed, but most depends on the bringing up.

Butter-making in a Nutshell.

The Wisconsin Dairymen's Association offered a prize of \$15 for a short essay, not to exceed 250 words, on butter-making. There was a keen competition, and many valuable little articles were sent in. The first prize was won by Mr. D. W. Curtis, of Fort Atkinson, and is remarkable for its conciseness. It reads as follows:

COWS.—Select cows rich in butter-making qualities.

FEED.—Pastures should be dry, free from slough-holes, well seeded with different kinds of tame grasses, so that good feed is assured. If timothy or clover, cut early and cure properly. Feed corn, stalks, pumpkins, ensilage, and plenty of vegetables in winter.

GRAIN.—Corn and oats, corn and bran, oil meal in small quantities.

WATER.—Let cows drink only such water as you would yourself.

CARE OF COWS.—Gentleness and cleanliness.

MILKING.—Brush the udder to free it from impurities. Milk in a clean barn, well ventilated, quickly, cheerfully, with clean hands and pail. Seldom change milkers.

CARE OF MILK.—Strain while warm; submerge in water 45 degrees. Open setting 60 degrees.

SKIMMING.—Skim at twelve hours; at twenty-four hours.

CARE OF CREAM.—Care must be exercised to ripen cream by frequent stirrings, keeping at 60 degrees until slightly sour.

UTENSILS.—Better have one cow less than be without a thermometer. Churns without inside fixtures. Lever butter worker. Keep sweet and clean.

CHURNING.—Stir the cream thoroughly; temper to 60 degrees; warm or cool with

water. Churn immediately when properly soured, slowly at first, with regular motion, in 40 to 60 minutes. When butter is formed in granules the size of wheat kernels, draw off the butter-milk; wash with cold water and brine until no trace of butter-milk is left.

WORKING AND SALTING.—Let the water drain out; weigh the butter; salt one ounce to the pound; sift salt on the butter, and work with lever worker. Set away two to four hours; lightly re-work and pack.

Quality of Milk as Affected by Food and Breed.

In a recent lecture delivered before the students of the Royal Agricultural Society, Cirencester, England, Dr. Völker made the following remarks:—

In the year of 1862 I made some experiments with a view of finding out, if possible, how it was that some of our cows produced at that time such bad milk. Our cows were wretchedly fed, and we had rancid butter and very indifferent cheese. I wanted to find the reason of the poor milk, and I saw the cows milked, and when I analyzed the milk regularly in the laboratory I was perfectly astounded to find how, with a change of food, the character of the milk changed immediately. In the month of September, 1862, our cows gave milk that only contained 1 1/2 per cent. of pure butter fat—you can add one quarter more to represent the quantity of commercial butter—and 90.7 per cent. of water. In the evening the cows milked a little poorer—90.7 per cent. of water, and only a little over 1 1/2 per cent. of pure butter fat. Mr. Coleman thought the scant herbage accounted for this poverty of the milk, and also for the scanty supply which the cows furnished. He therefore put the cows in the stable in the evening, and gave them hay, mangolds and rape cake (rape cake is very good food if you can get it free from mustard), and the result was that immediately the quality of the milk improved. Then he gave them the palm-nut meal, with the same result, and so rapid was the improvement that, by giving the cows concentrated food in the evening, the milk of the following morning was immediately very much richer than that of the evening before, so that in something like six hours the food told upon the quality of the milk.

It is surprising how rapidly oily matters introduced into the food will find their way into the milk. I mention this to throw a little light on the question whether morning or evening milk is the better. It is entirely a question of feeding. If you feed the cows well in the day the evening milk is rich, and if you leave off the feed at night, the morning milk is poor. As a rule, therefore, the evening milk is somewhat richer than the morning, but it does not follow that it is invariably the case. I find, for instance, during the twelve months to which I have referred, that out of thirty-two samples of morning and evening milk, in eight cases the morning milk was poorer than the evening; on four days the morning milk was the richer, while on the remaining four days there was no appreciable difference between the quality of the morning and evening milk.

From a table before me, I see I have found as much as four per cent. of pure butter fat,

and I have found as little as 1 1/2 per cent. I have found similar difference in experiments which for the last four years I have carried on under my own personal supervision, seeing the cows milked and so forth, at the shows of the British Dairy Farming Association at Islington. In 1879 we had in the showyard an Ayrshire cow whose milk produced 5 1/2 per cent. of pure butter fat, while that of a Dutch cow gave as little as 8 1/2 per cent. In the succeeding years we had similar variations, but I cannot help giving you the results of the last year's milk trials which have just passed through my hands, relating to the show held on the 24th October last, and I confine my quotations to prize winners. The first prize animal, a large Dutch cow, a very profitable animal to the milk dealers, gave in the morning 31 lbs. 4 oz., or about three gallons, and in the evening 29 lbs.—total, 60 lbs. 4 oz., roughly speaking, six gallons of milk in the day. But when we examined the milk I found that the produce of the Dutch cow gave only 2.86 of pure butter fat, total solids 12.12, leaving 88 per cent. of water—evidently not a rich milk. The second prize cow, a very taking little Devon, gave in the morning 15 1/2 lbs.; in the evening 11 lbs.—total 26 1/2 lbs. of milk in the day, or about 2 1/2 gallons less than half the quantity of the Dutch cow. But the milk of the Devon cow gave 5 1/2 per cent. of pure butter fat, and would, therefore, make 1 1/2 lbs. of saleable butter per day, while the six gallons of milk of the Dutch cow would only make 1 1/2 lbs. of butter.

Beef Breeds for the Dairy.

A war is raging in the agricultural press, led chiefly by numerous correspondents on both sides of the Atlantic, with regard to the class of cows which would be most profitable in dairying districts.

In our last issue we exposed the folly of using anything but dairy cows for dairy purposes; and we are pleased to find that Mr. W. D. Hoard, President of the N. W. Dairymen's Association, Wisconsin, supports our views. In his paper read before the Wisconsin Dairymen's Association, he says:—

"Get this idea of beef out of your heads as soon as possible. Breed only from the best strains of dairy blood. If butter is your object, then turn the forces of your herd towards the Jersey or the Guernsey. Get a pure bred bull to start with, and you will wake up to an enlarged idea of the value of his calves for cows, not for the slaughter house. If cheese is your object, breed from a Holstein or an Ayrshire. These four families are the solid cow of the world. If you are a dairyman let the Durham, Hereford, Polled Angus and the Galloway alone. The sooner you take a sensible view of this question of breed, as do the horsemen, the sooner you will have calves that it will pay to keep. You cannot make a cent fighting the laws of nature. Get into the channel of her manifest teachings and act in obedience thereto, and she will further your purpose."

This view was supported by Mr. Hazen, the pioneer dairyman of Wisconsin, and ex-president of the State Dairymen's Association.

In the State of New York the average value of cows is \$33.50 per head, and the average value of their products is exactly the same amount for each cow per year. Three acres of land are required for her annual maintenance,

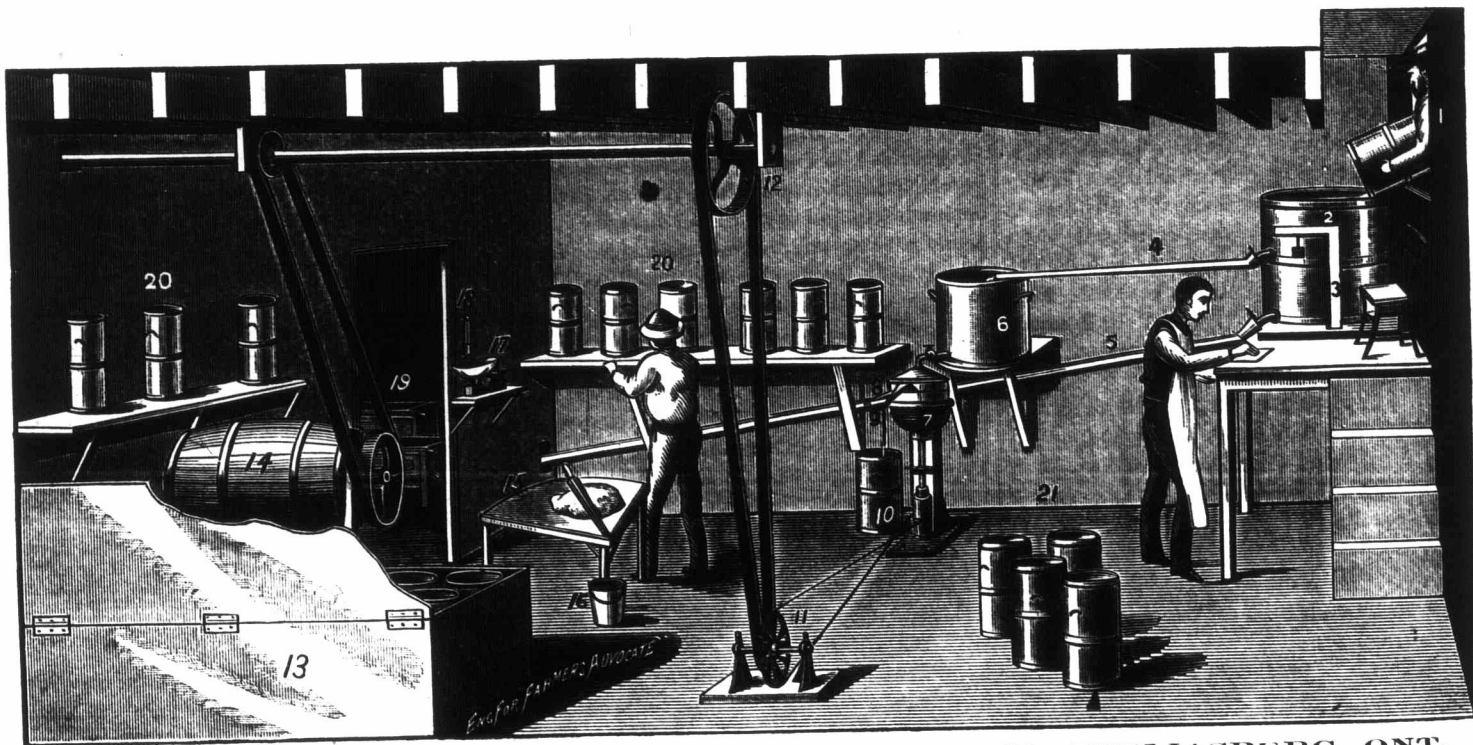
**Interior View of Sprague's Butter
Factory, Ameliasburg, Prince
Edward Co., Ont.**

In the accompanying illustration may be seen a man delivering milk and is in the act of emptying the milk into the receiving can, where the milk is examined and weighed. From the receiving can you see a conductor leading to the feeding can; from the latter it is admitted into the DeLaval separator. The velocity of the separator is such that it revolves at the rate of four miles a minute. This rapid motion throws the milk to the outside edge of the separator, and the cream, being the lightest, rises to the top, and is discharged, as seen in illustration. The cream is seen running into the cream can standing on the floor, the milk pouring into the conductor to be made into cheese. From the receiving can a second conducting trough runs from the

170 acres and keeps 20 cows; he procures the milk from 200 more at the present time. He commenced in the right way to succeed. His first factory was a small log building, now partially used as an ice house. His present building is only small in comparison to many factories, but all the space is profitably utilized. The whole building is only 32 by 32 feet, and is 1½ stories high; the engine-room is 8 by 16; butter-room, 15 by 20; cheese-room, 16 by 25; drying-room, 15 by 20; driveway, 15 by 22. The building cost \$500; the implements, including the engine and the DeLaval separator, \$750. Another very decided advantage of this system is that the milk only requires to be delivered once daily; and another is that a person can take his milk to a creamer, have the cream extracted, and take his milk home for other purposes.

Mr. Sprague deserves the thanks of the

of the cows devoted to butter-making will fall below one-fourth of that amount. There are cows that have given from 14,000 to 18,000 lbs. of milk in a single year, and yet I believe that a majority of the cows of this State will not much exceed 3,000. N. S. Wright, of Elgin, Illinois, reports that from his herd of 27 grade Holstein cows, he received \$97.74 per head; and yet the average proceeds from the dairies of our State will not much exceed one-third of that amount. A cow has been kept an entire year upon the products of a single acre, and yet, amongst the farmers who make dairying a leading business, from five to eight acres are required. This wide difference may be in part attributed to the fact that dairying, in the modern acceptance of the term, is comparatively a new business in this State; and very many, and perhaps the majority of those engaged in it, have not yet been able to place



INTERIOR VIEW OF SPRAGUE'S BUTTER FACTORY, AMELIASBURG, ONT.

1, Delivering Milk. 2, Receiving Can. 3, Scales for Milk. 4, Conductor to Feeding Can. 5, Conductor for Milk to be Made into Cheese. 6, Feeding Can. 7, DeLaval Separator. 8, Faucet for Cream. 9, Milk Faucet. 10, Cream Can. 11, Driving Power. 12, Pulley and Shafting. 13, Cooling Vat. 14, Churn. 15, Butter Table. 16, Pail. 17, Scales for Salt. 18, Thermometer. 19, Cheese Factory. 20, Cream Cans.

bottom of the can into the cheese factory. The cans containing the cream are placed in a cooling vat, which is 2½ by 7½ feet, and contains 12 cans; the cans are 19 inches high by 9 inches across. When the proper temperature is obtained, it is placed in the churn. The churning is not such a rapid process as gathering the cream, for a slow motion is required to obtain good butter. The churn will hold 80 gallons, but 60 is the working capacity. When churned, the butter is taken out, properly cleaned, salted and packed.

Such is the reputation of Mr. Sprague's butter that he cannot begin to supply the demand, although he charges five cents more per pound than the farmers are able to obtain. As soon as we had seen the pastures, the water and the mode of making, we immediately booked our order, as it is not always possible to procure good butter even in the city of London, which is in the centre of as fine a dairy district as any in Canada. Mr. Sprague farms

dairymen of Ontario for furnishing us with an opportunity for gaining such valuable information, as we feel satisfied that many will ere long adopt the plans now carried out by Mr. Sprague. This is no theory, but paying and profitable practice; the plan is paying Mr. Sprague, and it would pay many of you to take a trip to see his compact little factory. If you go, take wife or daughter with you, and let them enjoy the beauties of a trip in the Bay of Quinte to Alexander Bay.

Average versus Maximum Dairy Profits.

Mr. C. R. Beach, in a paper lately read before the Wisconsin Dairymen's Association, pays the following compliments to the dairymen of that great cheese State. He must have had one eye on Canada. He says:

"A score of cows may be named that have produced over 500 pounds of butter in a single year; yet a large number, if not a majority,

themselves in condition and with surroundings to produce the best results; and a part may be attributed to the want of scientific knowledge; but if we are to find a full and satisfactory explanation for this wide range of results we must seek other causes; and, judging by my own experience, I should say that the fault is chiefly in ourselves, and not in our stars, that we are underlings. We don't try; we are constitutionally lazy, intellectually, if not physically. Extraordinary, or even good results, do not come by chance; they do not simply happen. "Eurotus" did not make \$778 worth of butter in a year because she happened to be a Jersey. The cow that gave 18,000 lbs. of milk did not do it because she got to giving milk and couldn't stop. It was not a special dispensation of Providence that Mr. Wright received \$98 per head for the milk of his cows, while his neighbor received but \$30."

Change cattle and sheep to other pastures.

Stock.

The Geary Bros. Live Stock Breeders and Importers Association of Canada.

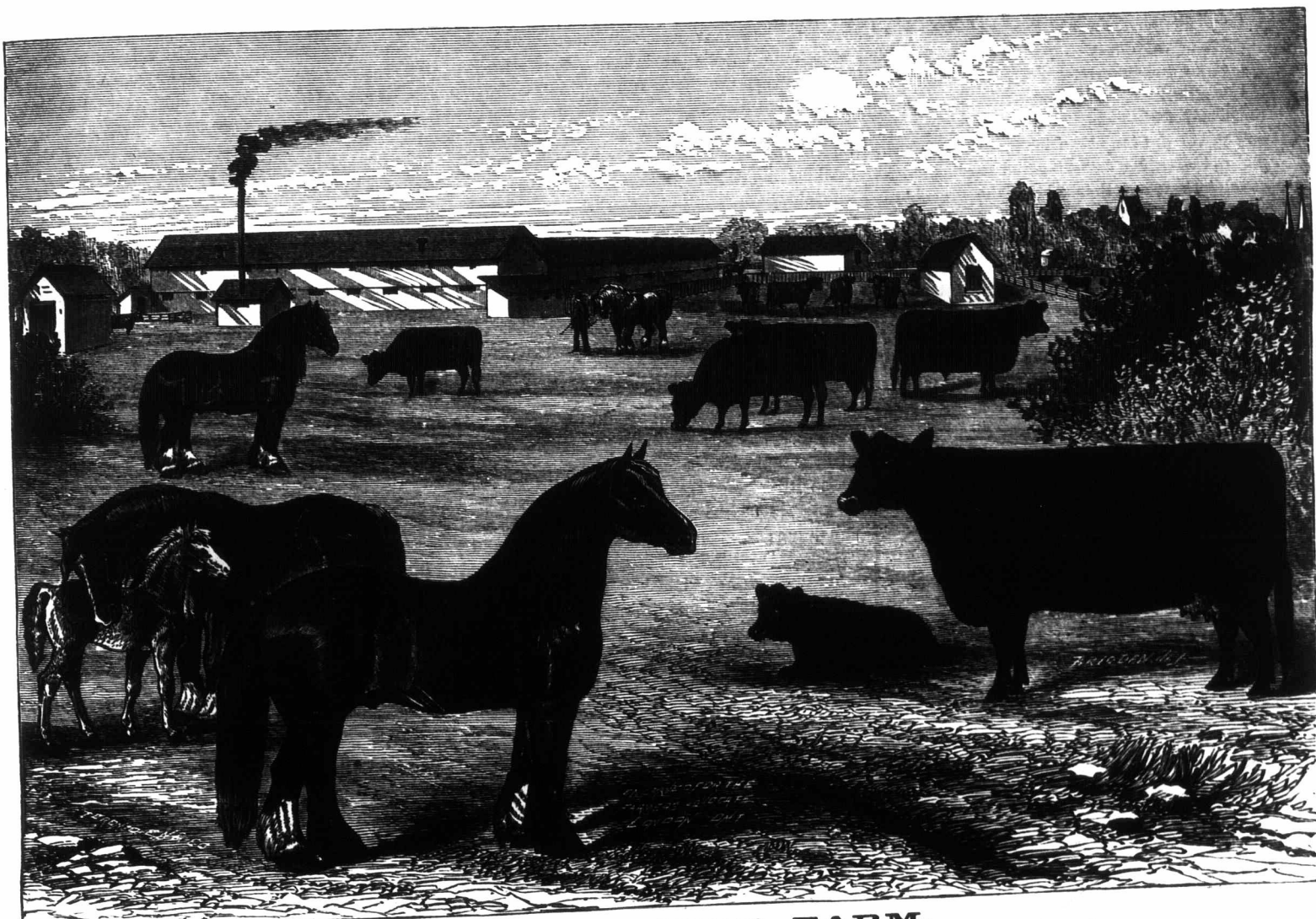
It is pleasing to note the development of our agricultural resources. We now call your attention to Bothwell, Ont., of which many of you heard of in the days of its oil excitement, and by others as the locality of the great Scotch farm established by the late Hon. G. Brown. Now we introduce it in a new light. One thousand four hundred and fifty acres have been purchased by the Geary Bros. Live Stock Breeding and Importing Association of Canada, 850 acres of which are still in

brought to the marts, so much so that a great demand has sprung up for this class of animal. So strong is the prepotency of the bulls that their progeny are almost invariably hornless and the majority of them black. Thus the stock from the first cross are in great demand, and a good profit is to be made at the present time by raising cross-bred Angus cattle; the bulls might now be shipped by the thousand if we had them, so large are the ranches that some of the grazers require two and three hundred bulls for their own herds. Several parties are now using the Angus bulls for that purpose, and we have no doubt but those who are first in the market with a quantity of these cross-bred bulls, may reap a rich harvest.

Shire mares on the farm. The advantages claimed for this class of horses are their great docility, weight and utility, having a fine crested, arched neck, combining the advantages of weight, action and style. They are as yet comparatively but little known in Canada, but in a few years you will know more about them, as they appear destined to become more popular as they become better known.

Hiram Walker & Sons, of Windsor, Ont., have purchased 1100 acres in Bothwell, which we understand is to be used as a stock breeding farm.

Bad water spreads disease.



KEILOR LODGE FARM.

BOTHWELL, ONTARIO, THE PROPERTY OF THE GEARY BROS. LIVE STOCK BREEDERS AND IMPORTERS ASSOCIATION OF CANADA.

woods and 600 are under farm management, principally in grass. This land is much better adapted to grazing than for any other purpose, as there is a damp subsoil which produces good grass in the dry summer seasons when it ceases to grow on the heavier lands. The object of the proprietors is to raise Polled Angus cattle and Shire horses, to supply Canadians and others with these two valuable classes of stock. There is a desire in some parts of Canada to breed the horns off cattle and to increase the beefing qualities of animals intended for shipping. In the great cattle ranches of the United States where Polled Angus bulls have been introduced, a great improvement has been noticed when their progeny have been

On this farm is to be found the largest herd of this class of animals in Ontario. They have about 100 head of breeding stock, among which are many very superior animals. We give the likeness of two in the background of the accompanying illustration. The calf we regret we have not been able to show to advantage, for when we saw him lying by his dam we really thought the head alone was deserving of an illustration, as it appeared to us the handsomest head we had ever seen on a Polled Aberdeen. The lines were so beautiful and graceful that we have since tried to have his head photographed, but it is difficult to get a calf in position.

There are kept Shire horses and several

BULLS FOR KANSAS.—Mr. A. Armstrong, of Ingersoll, who has been purchasing stock in Middlesex and Oxford counties, is about shipping 45 yearling bulls to Kansas City, for ranching purposes. They are all pedigreed stock, and cost, on an average, \$88 each, the highest figure paid being \$95.

It is estimated that seventy-five per cent. of the cattle in America are natives. How to escape the doctors and vets—Use plenty of wholesome food and pure water.

“Your paper gives every satisfaction, and I hope that your circulation will increase.”

K. G. M., Winnipeg.

The Live Stock Speculation.

Complaints are made by Western breeders of the poor quality of imported cattle. It is charged that runty, inferior, refuse animals, culled from foreign herds by speculators, are sold at public sale to greenhorns in the stock business, who wrongly believe that an animal's value is directly proportionate to the length of its pedigree, and the amount of its price; and who quite ignore the fact that the pedigree of any one of these animals has no more solid foundation than the mere word of its owner, who of course is an interested person and profits by any mistake, unintentional or otherwise. The present rage for imported cattle exists among the speculators and not the breeders. The breeders are well supplied by their own importations and have sufficient material to support their herds and meet all the demands of their experienced customers.

But a large speculative business is done in imported cattle, which are gathered up here and there; put in quarantine for ninety days; got up by feeding, brushing and various tricks of the jockey, and then sold to the greenhorns who are enthused by some previous puffing, and so lose their heads as to bid against each other, and pay enormous prices for cattle whose reputation depends upon the mere statements of the speculator. It is a marked feature of this speculation that every month or so a new strain or family comes to the front; the old favorites being forgotten, and the new favorites exceeding in price all previous records. And very soon these in their turn are displaced by a new one, and so the little game is kept up to the very great advantage of the speculators, until the bubble will burst by its extreme expansion.—[Modoc, in N. Y. Tribune.]

HOW TO TELL WHEN A COW IS PREGNANT.—In these times of high-priced Jerseys, and especially of the service of bulls of desirable strains of blood, it is a matter of great importance to know whether the cow has become pregnant; otherwise valuable time may be lost, which may vary the desired time fixed for her next calving. This information may also prove of value as to the condition, also, of the bull's verity; should this prove defective much inconvenience, or loss both of time and money, may result. A short time after a successful union the milk of a pregnant cow will indicate her true condition: get a drop of fresh milk drawn from the cow whose condition it is desired to know, let it fall into a glass of clear water, let the glass stand upon the table between the light and the observer, and if it readily disseminates itself through the water it is an evidence that the cow is not in calf, but if, instead, a drop of the milk of a cow served a short time previous and who is pregnant, falling upon the water, sinks to the bottom without making the water look milky only to a slight degree and distance, it is the result of the residuity and the increased specific gravity of the milk of a pregnant cow.—*Exchange.*

SHEEP EXPORT.—Mr. Robert Balderson, of Perth, has shipped within the past two weeks thirty-three hundred sheep to the American market. He sent away from Ottawa one day recently two carloads.

Work Horses on Grass.

W. D. Boynton, in the *Indiana Farmer*, says: Many farmers claim that it is better for horses to be out on grass while they are not at work during the summer. If there was a period of a month or more when the horses were not needed, I should say turn them out in a good pasture; but I know that few farm horses can be idle that length of time. Usually they are needed every day or two, either on the farm or on the road; if, indeed, they are not needed more or less every day. To turn horses out on grass when they are caught up and used frequently, in this way, is an injury to them. There is nothing that will run a horse down quicker than to be worked on grass in this way. You may feed them grain while working, but that does them but little good when their bowels are in a loose condition, as they always are while running out to grass. Grain goes through them with no apparent benefit, and it is a waste to feed it to them under such conditions. Horses cannot stand hard driving or hard work when they are taken from the pasture full of grass. I have noticed that it takes several weeks to harden horses up for fall work after they have been in the pasture through the summer.

Not a few men claim that they cannot afford to keep a team up in the stable all summer for a few days work. A man might avoid feed a little through the summer by turning them out in the pasture, and catching them up as he wants to use them, but would he not lose as much in some other way by the means?

In the first place he cannot do a full day's work with a horse that he has caught up from the grass in the morning. If he is cultivating, he will have to give them a long nooning and quit early at night. This is quite an item, especially if he has hired help and wants to get in full time. Then, too, it won't do to lag with the work while the weather is uncertain. It is an easy matter to lose \$25 in the crop by slack cultivating, and that would go far towards keeping a team through the season. And again it will take an extra amount of grain to get them up into working order in the fall. Everything considered, I think it economy to keep the team up through the summer if there are many days' work to be done.

THE HAVEMEYER SALE.—The public sale of the increase for 1883 of Mr. Theodore A. Havemeyer's Mountainside herd of Jerseys and several head from the herd of Mr. F. C. Havemeyer, at Westchester, was held recently, with a good attendance of breeders. Mr. F. C. Havemeyer's Mary Hinman 17619 (two-year-old heifer) went to Miller & Sibley, Franklin, Pa., for \$800; Pedro's Georgie 25664 (heifer calf) to J. A. Harris, of Florida, for \$660. Mr. T. A. Havemeyer's Mountain Berry 26057 (heifer) to Valancey E. Fuller, Hamilton, Ont., for \$600, Compo 4th 26013 (heifer) to W. H. Corning, Cleveland, O., \$500, and Coomassie Carlo 12180 (bull) to John A. Bennett, Danville, Pa., \$425. Four sons of Dr. Howe's Gilderoy sold for \$425, \$435, \$455 and \$270, respectively. The bull Silver Sheen 9017 (son of the \$15,000 bull Black Prince of Hanover, dam Satin 10339 by Duke of Darlington) was not sold. Mr. W. H. Corning, of Cleveland, O., secured several of the best things.—[Breeder's Gazette.]

The Mouth and Bit.

The *National Live Stock Journal* says:—Yet the bars of the mouth on which the bit rests are as amenable to culture as are the fingers amenable to improvement in sensitiveness of touch. This is a matter of training which can only be carried on successfully by gentleness from a delicate hand, the lessons being repeatedly given, and all the time alike. The idea that the horse can be made to mind the bit and become tractable under it by jerking and roughly forcing him to whirl round, or go from side to side under strong pressure from the lines, is an error. Such treatment causes callosities, thickening of the delicate gums upon which the bit rests, and, in proportion as this rough treatment is persisted in, does the mouth part with its sensitiveness and the horse pass beyond a reasonably fair stage of susceptibility to training. The curb bit should be used with great care, as it is in every sense a lever, and a very free going horse may rush forward upon the bit with such determination as to bruise through the delicate tissues covering the bone, and it not infrequently happens that the bone becomes injured to the extent of splitting off pieces, which, adhering for a while to the soft parts, slough loose, causing great suffering, and eventually leaving a depression at the point from which they become detached. Few realize the hazard that is incurred by using a long curb lever to the bit, taking away all pliability of this by unduly tightening the curb chain or strap.

The sensitiveness of the bars upon which the bit bears is very great. Covered with a delicate velvet-like mucous membrane, with a highly sensitive structure beneath this and over the bone, we are admonished that we have in this sensitive structure an efficient agency in bringing the horse under our rule. To get the full benefit of these sensitive bars, we must preserve their sensitiveness. This is done by using a bit that can be borne easily and without injury, and by using gentle force. When these precautions are neglected, thickened, indurated bars, are the result, and as this condition increases the horse loses his tractability, and if he be naturally headstrong then the calloused mouth will render him doubly so, because in proportion to the thickening and hardening of the parts upon which the bit bears, in that proportion is he able readily to resist the driver's will, asserting his own. This condition is sometimes produced upon one side of the mouth, the other side not being callous. Where this occurs the horse will be addicted to pulling upon the rein of that side, and his power to resist turning to the right, if the thickening be upon the right side, or to the left if it be on that side, will be great, and all this may be, and often is, attributed to having what men see fit to call a stiff neck. All efforts to change and improve the forward carriage of the horse by manipulation through the bit and lines, should be put into force very gradually, and in place of doing violence to the horse's natural formation, as is too commonly done, the utmost ingenuity and judgment should be exercised, looking to improvement rather than to a violent change.

Don't inaugurate a system of feeding which you cannot continue with unflinching regularity.

The Farm.

Mistakes of the Season.

If "time is money," it is emphatically so in haying and harvest. The farmer's whole mental and physical energies should now be concentrated on his work. All the toil and anxious care of the preceding ten months will now be recompensed or remain unrewarded, according to the amount of judgment displayed during the coming few weeks. Apart from the pecuniary loss, there can be nothing more annoying than to see the fruits of whole months of ceaseless labor now rendered useless owing to errors in management. A day lost now means more than the loss of a day; it means also a depreciation in the value of the products of the field. Don't accept the excuse that hay will go farther in winter feeding if cut on the late side; it certainly will reach farther, for it will be less relished by the stock, being more woody and less nutritious.

Very few farmers can be accused of spending their time in idleness, but they spend it in a manner equally culpable. Indeed, if they are to be censured at all with regard to their manner of application, the fault laid to their charge would be that their hours are too prolonged. Instead of keeping the necessary supplies on hand, many now spend their time in hanging round the express or telegraph office, or running to the manufacturer or dealer for needed repairs which they forgot to procure when they were last in town. Some parts of the implements or machinery are broken by the recklessness of incompetent hands; other parts are allowed to rust or wear out, and no thought of renewing them is taken till the crash comes. If the manufacturer was so negligent, and forgot to keep the necessary repairs on hand, what would become of his reputation and his business? In such cases self-interested motives should control the customer as much as the dealer. Of course it is impossible to guard entirely against accidents, but every farmer should endeavor to find out the vulnerable parts of his tools, implements and machinery. We have seen farmers who resort to borrowing from their neighbors under such circumstances; such men usually have just enough spare time to do the borrowing, having none left to do the returning until the long winter's evenings come round. There is in every neighborhood at least one farmer who purchases at cheap auction sales sufficient tools and implements for his own use and for the use of all the other farmers in his vicinity.

We have fortunately survived the time when it was thought that any resort to labor-saving machinery was the offspring of laziness. The force of necessity has happily dispelled this superstition, farmers having now to compete with the world like people in other pursuits. But there are still many relics of barbarism and much false economy practiced on the farm. Many farmers will mow all day long with a dull sickle or scythe because they have no time to grind them, or perhaps their grindstone is out of repair, or having none, their neighbor is too far away, or the boys are too busy to turn the crank. In such cases the field work is performed at a great expenditure of time and muscle, the depreciation of the implements is

more rapid, and breakages are far more liable to occur. Advanced farmers keep two stones of different grits, perhaps also a self-adjusting one with friction wheels and treadle, and often keep besides an automatic sickle grinder.

Particularly during the threshing season are these errors very palpable. If we were to make a choice of threshers, we should unhesitatingly select the man who is best fortified against breakages. Such a man is almost sure to be competent in every other respect. A breakage occurring in the threshing machinery not only deranges the plans of the farmer, but also those of his wife; it keeps a dozen of the neighbors idle and disorganizes their arrangements, and it disturbs the month's programme of the threshers themselves. We have also seen threshers lounging round telegraph and express offices, and if the repairs did not come first express, they would repair to the manufacturer with a list of grievances the length of which was quite out of proportion to the time they had at their disposal. The manufacturer is supposed to suffer disturbance at midnight in order to dance attendance on them; and if there is not an express train held in readiness to convey them back, then there is something radically wrong with the laws of the land. Prudence is better than such kind of pluck. If such threshers would sit down some wet day and count the total cost to themselves and to all concerned, of a cylinder pinion obtained under such circumstances, and post the debits on his machine, we venture to predict that three-fourths of such performances would be averted, and they would cease to grumble because they couldn't get more than two years credit for their repairs.

India Wheat.

A well informed writer in the New York Sun asserts that it may be confidently predicted that at no distant day the exports of India wheat will be second only to those of the United States. The pressure of competition, he says, will be severe and long on all who enter the wheat market. India will sow better seed, use better tools, and before long will have cheaper modes of inland transit, and the American elevator with which to handle her grain. The English and the French are both making a very light system of railway of from 2 to 2½ feet gauge, which is much used in countries south of the equator. This system costs only from \$1000 to \$1200 a mile.

Indian wheat is to-day an important factor in European grain markets and has become the principal check to speculators in this country. Therefore it is asserted that the American grain grower will have to reduce the cost of production, and be content with small profits. The millers are urged to send a quality of flour to Europe with which competition will be impossible. In that case we shall have the advantage of production and manufacture, with the residuum left for cattle food. Actual tests show that the percentage of gluten is much larger in American wheat, but India wheat is drier than ours and makes more bread. Yet the preference is for the American article in point of color, and general characteristics of the bread. Our future strength in the European wheat market is in sending flour instead of wheat.—[Mass Ploughman.

The Cut Worm.

This insect, which has again commenced its annual ravages in many parts of the Province, attacks many forms of vegetation. Several species of the genus *Agrotis* have been found. There are black, brown, and striped forms. The larvæ are from one to two inches in length, having a variety of shades of brown from light ashen gray to almost black, with a lighter stripe along the back. They have a smooth, greasy appearance, developing into moths which usually fly during the night or on cloudy days. Their wings have various shades of gray and brown, the under pair being lighter, and when fully expanded the wings extend from 1½ to 2 inches. Late in summer the eggs are deposited upon plants near the ground, the larvæ soon appearing. They burrow into the ground, where they remain during the winter, first feeding on the tender roots, but when the weather becomes more severe, they burrow deeper and remain torpid till spring. When the warm weather sets in they openly attack the plants by night, hiding during the day. The full grown insects finally enter the ground, where they form cocoons of earth and appear as moths late in summer.

Late fall plowing will expose the larvæ to destruction by frost and birds. If the field is thoroughly summer-fallowed, scarcely any can escape extermination. Their ravages should be closely watched, and where the plants are found cut a hole may be punched in the ground with a pointed stick; here they will be found hidden the next morning, when they can be easily destroyed.

School Children Studying Agriculture.

At a recent agricultural show in Chartres, France, many children, both boys and girls, exhibited copy books containing descriptions of the best methods of budding and grafting trees, specimens of insects injurious to vegetation, of the different grasses, and the various kinds of wheat and other grains grown in the district—all illustrated by simple, yet finely executed drawings. These things are taught in the industrial schools established by the government in all parts of the country. In some of the departments of France, agricultural text books are in daily use in all the rural schools, and the pupils are taught the difference between the useful and the useless in insects, birds, weeds and grasses. We notice that the propriety of similar teaching in the rural schools of Great Britain is being agitated by several distinguished English gentlemen. What have our own farmers who so largely contribute to the school fund of this country, to say to a similar innovation in the instruction given in the public schools? A little talk from them on the subject in these columns will do no harm.—[Prairie Farmer.

A hog weighing 989 pounds is on exhibition in Philadelphia.

Last winter ten per cent. of the stock in British Columbia perished.

Nearly 5,000,000 cattle have been driven north from Texas during the last seven years.

According to a German authority one hundred and fifty-six different kinds of cheese are manufactured in Europe.

Effects of Mulching.

P. Snyder, in the *American Cultivator*, says: Mulching has long been known to be beneficial to land, but evidently it has not received the careful observation as to cost and profit which it seems to deserve. Possibly this is due to the difficulty of finding sufficient material, although it certainly is true that a great deal of very valuable mulch that might be utilized is often wasted by careless farmers.

The common idea of the use of a mulch is that it retains moisture in the soil, and in this way benefits crops in a dry season. It also, if thick, prevents the growth of weeds, and prevents the full action of the hot sun on the soil. But it does more than this. It acts in some cases like manure, adding fertility to the soil and pushing the crop forward with remarkable vigor, and if it does so uniformly it can be made a powerful aid in agriculture.

Some ten years ago I mulched a piece of land planted to strawberries with salt hay, and kept it on most of the time, winter and summer, until the piece had borne three crops, I think, and the salt hay had become very short from the weather and the manipulation to which it had been subjected. The season had been very dry, and I desired to plant the piece to late fodder corn. A light rain came late in July and then as soon as possible it was plowed, as was also a piece by the side of the mulched patch, in all nearly an acre. The latter broke up in lumps, and was very difficult to plow at all with one horse. The mulched piece was nearly as mellow as an ash heap, and it was a pleasure to turn it over. When done the unmulched piece was harrowed several times to break the lumps, and then both were planted on the same day, Aug. 1. On the mulched land the corn came up promptly in five days, had a good color and grew rapidly until caught by a rather early frost. The seed on the other part lay nearly a fortnight before any appeared, and even then much of it failed; while the growth, though treated the same as the other, was vastly inferior. Indeed, the contrast between the two pieces was extraordinary in color, vigor of growth and the proportion of seed which germinated. None of it had any manure.

This was the first and only instance in which the effect of protracted mulching came under my observation, but I am led by it to believe that when the material can be cheaply and abundantly obtained it will pay, though without manure the effect will not probably be very lasting. Salt hay is an excellent material, and that which is of the first quality will last two seasons certainly, and even a third one if taken up and piled or protected part of the time, as is necessary after a strawberry crop is gathered in order to cultivate between the rows and thoroughly subdue the weeds and runners. But on thousands of farms other material can be found, not quite so good, perhaps, but still of value.

Would it not be well if the experiment stations or experimental farms of the country undertook some careful experiments with mulching, to test the cost and permanence of systematic mulching as an aid to agriculture? We must look to them rather than to the busy farmer for such demonstrations.

An Ohio Barn Crib.

Fig. 1 is an illustration of a very convenient and substantial double corn-crib with a wagon and shed between. Such a crib can be built any size and filled with grain without the least sign of weakness. One is a brace for the

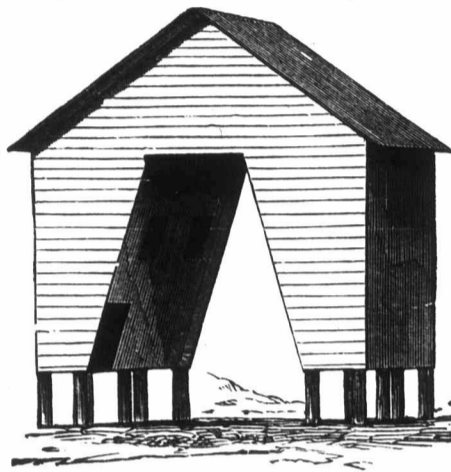


Fig. 1.

other, and the more grain there is in it the firmer it will be. It is useless to explain how the timbers should be put together, and where every door should be cut out, when one glance at the illustration will answer.

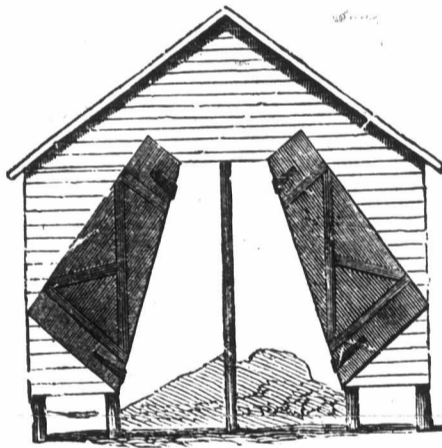


Fig. 2.

Fig. 2 represents the double doors made to correspond with the entrance of the shed. The doors when shut are fastened to a piece of scantling standing perpendicular, one entering the beam, the other entering a block put in the ground. The foundation can be of wood or stone, as suits best. This is what we call the "Ohio Dutch Yankee corn-crib."

More Grasses.

We not only need more grain in this country, but more grasses. We do not cultivate half of the number of varieties which we should. In this particular English farmers are far ahead of us. It may be said that in this country not more than six varieties of grass are extensively or generally cultivated. It is rare to find more than three different grasses sown together; but one variety should be in each meadow. The different varieties do not ripen at the same time, and one will be ready to cut for hay when the others are not. But this very fact makes a variety of grasses in a pasture a thing to be desired; it provides a succession. There is another reason why our pastures should contain a greater variety of grasses than they do, and I am sorry to say it is something which our

farmers have overlooked. A variety of food is just as essential to the well-being of an animal in summer as in winter. It is very nearly as bad to feed but one grass, as to feed but one grain. The profitable digestion and assimilation of food demands the variety of food, and it is just as necessary to provide this variety of food in the pasture as in the crib.—[New England Farmer.]

How Stumps are Blasted Out.

A correspondent of the *Ohio Farmer* gives his experience and some practical directions on this subject, as follows:—

"Last spring I sent to Indiana and hired a man to come and blast our stumps. I paid 41½ cents per pound for the powder, and 15 cents for each stump taken out—he to furnish caps and fuse. The stumps were mostly white and burr oak, from 20 to 40 inches in diameter, and had been cut from six to twelve years. Sixty-seven of the worst were taken out at an expense of 68 cents per stump. There were only three or four failures in the whole lot. As they were blown into pieces, it was much less work to pile and burn them than when taken out in the ordinary way. I bought material and took out nearly 200 smaller stumps at an expense of about 20 cents each. It took me about ten or fifteen minutes to prepare a blast. I used a two-inch auger on five foot shaft for boring under the stump. A crowbar will do in soft ground; those who follow the business use a two and a half inch auger. The charge should be put as nearly under the centre of the stump as possible.

"It is not very dangerous to use, as fire will not explode it. The cap is placed in the cartridge, and is connected by a fuse. You light the fuse, which in one or two minutes explodes the dynamite or Hercules powder. Eight or ten rods is a safe distance if you are facing the stump, for you can easily dodge chunks if any come toward you.

"It will not pay to use it very extensively on green stumps, as it will take from three to eight pounds per stump, and will not give very good satisfaction at that."

Experiments were made at the Houghton farm, New York, in order to determine the temperature of the soil at various depths. Thermometers were placed at the surface and at the depths of three inches, six inches, nine inches, one foot, three feet, five feet and eight feet. They were noticed hourly from May to September. There is a great daily range caused by absorption of heat by day and radiation at night. The maximum temperature at the surface is about midday and the minimum shortly after midnight. These extremes are later at successive depths until at one foot they are retarded eight to ten hours, presenting the curious feature of the one-foot thermometer rising while the surface one is falling, and *vice versa*. There is a constant rise in the temperature of the soil, beginning in the spring, easily observed to a depth of eight feet. During the autumn there is a zone of subsoil below one foot which is warmer than the soil above it, and this prolongs the season.

Hoe early and hoe often. [An active hoe is a good substitute for manure.]

Garden and Orchard.

Potted Strawberry Plants.

As strawberry culture increases among the people, we find increasing mention of potted plants. Such plants seem to be largely in demand in the States, and during the past three years have been making their appearance in increasing numbers in Canada, so that an important question in the minds of many lovers of this choicest of small fruits is, What is the nature and real value of potted plants?

The mode of propagation is simple enough, though somewhat tedious. As good strong plants that have been on the ground some time begin to throw out vigorous runners in June, the nurseryman fills three-inch pots with rich soil and sinks them in the ground within eight or ten inches of the old plant which is sending out the runners. The tip of each runner is then placed on the surface of the soil in the pot, and held in place by a small pebble; then as the tip of the runner expands into a cluster of leaves, a mass of root fibres extend downward into the soil in the pot and in from two to four weeks, if enough moisture is supplied, each pot contains a young plant sufficiently developed to be separated from the parent and transplanted to set up an independent existence. The chief trouble in this process is to keep up the supply of moisture. It is for this reason that the pots are sunk into the ground, as the little handful of soil that a three-inch pot can hold would soon dry out if the hot July atmosphere could get a chance at evaporation all around, even the outside of the pot. But with frequent watering a potted plant comes to possess great vitality. As a rule the plant should not be disturbed till it has made at least four leaves, and then on "tilting" it out of the pot a mass of root fibres is seen that always surprises a person who is familiar with only the common layer plants: the strong, white, twine-like roots circle round and round the little ball of earth, sending out branches here and there into the centre of the mass, and binding it so firmly together that it may be tossed from hand to hand around a room without losing any soil except a little from the topmost roots. These plants after removal from the pots, are packed in an upright position in shallow boxes, with damp moss beneath, around and above the combined ball of earth and roots, and in this state, with the tops exposed to the air, they will travel two weeks in an ordinary express car, and be in good condition to grow on being planted.

Such are the potted plants of growing horticultural fame.

Of course, layer plants, if set out in April, will bear a few little specimens, perhaps three or four each without serious injury to the plant; if set out early in the previous September they may even average from half-a-dozen to a dozen on each plant, and of larger size. But compare such handfuns with the rich yield

of a pint to the plant which may be grown on potted plants.

Another great advantage of potted plants to many persons is found in the testing of new varieties. The flattering descriptions of new varieties by their introducers are not sound enough evidence for the public. A trial with potted plants will give a test of the variety in midsummer of 1885, while with ordinary plants set next fall or spring nothing final can be known till midsummer of '86.

Winter protection is necessary for potted plants—just as necessary as it is with plantings of the previous spring if kept in hills. The "hill system" is wrongly named: there must be no hilling, but only keeping the runners cut off, in which case the plants grow into veritable little hills of verdure.

Thinning Fruit.

Next to good cultivation, nothing contributes more to bring out the excellent qualities of

far less time, and while his fine 'crop sold readily at a dollar and a half per basket, has neighbor, who did not practice thinning, found it difficult to sell his for thirty-seven or fifty cents.

President Wilder said, in an address before the American Pomological Society:—"One of the best cultivators in the vicinity of Boston has reduced his theory to practice, with the happiest effect, in the cultivation of the pear. He produces every year superior fruit, which commands the highest price. Some have doubted whether this practice can be made remunerative, except in its application to the finer fruits. But another cultivator, who raises an annual crop of the best apples, assures us that the secret of his success is the thinning of the fruit, and he has no doubt of the economy of the practice."

Apples and pears, when half grown, will show any defects or injuries from insects. In thinning the fruit these defective specimens should, in all cases, be removed. As many bushels of good fruit will be obtained from the trees in autumn, as there would have been of good and bad mixed together, had all been left to grow. The labor of assorting will be lessened, and the fruit bring a higher price in market. An experienced orchardist says that one day's work to fifty barrels of apples will thus take out nearly all the imperfect fruit; while the increased labor of hand-picking so many poor specimens, will be as great as taking them off in summer, when less care will be required with them.

Pruning the Quince.

The total neglect of the cultivation of the quince by many who have planted them has resulted in their dwarfish and stunted growth and entire unproductiveness. To renovate such trees, cut or saw out the thick profusion of suckers which surround the stem. In many instances young quince trees, as sold by the nursery men, have received no pruning or training. To give them a straight stem and to impart sufficient vigor to form a well balanced head, such trees should be cut down near the ground as soon as well established, and a single upright shoot allowed to grow for the future tree. The next year a good head may be commenced similar to that of a dwarf apple tree.

BLACK KNOT.—A man in Barrie has been in court for refusing to move certain plum trees which were affected with black knot. The law in the case was hunted up, and it was found that the Act could not be enforced because of the neglect of the local Council in failing to appoint a proper inspector. The case was dismissed.

Brains are to be extolled at all seasons, but in the harvest time they must be supplemented with plenty of muscle.

Now expect a visit from your city cousins, but don't let them arrange your programme for the month.



POTTED STRAWBERRY PLANT.

Grape Culture.

BY E. D. SMITH.

Grape vines on well drained clay loam are troubled at present by but few diseases or insect pests. The most widespread insect is the Thrip, a small greenish-white and brown and white animal (two kinds, probably male and female) that sucks the sap from the leaf from the under side, causing the leaf to wither up and drop off prematurely. The only remedy I know for this destructive "varmint" is clean cultivation, not only in the vineyard, but around it. If they have no weeds or rubbish to harbor in, they will leave to a great extent and go to your neighbor who has weeds. The steel blue beetle occasionally pays us a visit, sometimes stripping a whole vineyard clean one year and then passing away. This is a beetle about the size of a pea bug, of a steel blue color, and hops like a flea. It feeds upon the young buds as they are expanding, and a second brood upon the leaves in July.

The remedy is a large sheet saturated with coal oil of the cheapest kind, the cheaper the better. Stretch this under the vines by means of a strip of lath fastened to either side, having one of the strips cut in two and a slit in the sheet to the middle to allow the sheet to completely encircle the vine. Now jar the vine and the bugs will hop sure, lighting on the sheet if large enough, and they are at once smothered in the fumes of the coal oil.

Another enemy is the Phylloxera, of which we have the leaf-inhabiting form. All we see of this insect or its labors are small galls or warts on the under side of the leaf. These are said to contain the eggs of the insect, which, when hatched, emerge from an opening in the upper side of the leaf, and at once crawl into the ground and feed upon the roots. However this may be, or whether this is Phylloxera at all or not, these galls in such numbers upon the leaves as I have seen them—every leaf in the vineyard being so completely covered with them that a lead pencil could not be placed upon the under side of a leaf without touching one—must materially affect the crop, preventing the leaves from performing their proper functions. And yet the proprietor assured me he got good crops. I have carefully picked and burned all these galls in my own vineyard for the past five years, and see no increase in their numbers.

Mildew has been a great source of loss upon sandy land. This is combatted by a free application of sulphur, which if applied in time, is said to prevent the attack of this dread disease, but if neglected until seen will do little good. Soap suds are said also to be a remedy as efficacious as sulphur.

The rose slug destroyed the crops in Stamford township in 1882, to a great extent, completely defoliating the vines in some vineyards, one yard that usually in good seasons produced 40 tons, not yielding half a ton. Its ravages were stopped in other yards by careful hand-picking at a great expense. It was noticeable that the slug only infested vineyards on sandy land, those on clay loam escaping its visits.

In some districts the large green tobacco worm ravages the vines, eating the leaves. This is hand-picked, as in the tobacco fields.

A new disease visited this section last year, and I believe was universal over the Province. It was supposed to be the result of the cold wet

weather. After setting apparently all right, the berries seemed to be struck by a blight and continued to drop at all stages of growth, turning a brown color when small and later on a reddish color. Whether this disease has come to stay, or is only the result of the unusual season, remains to be seen. It reduced the crop one half last year, even if the remainder had ripened. Some vineyardists lost nearly all, others very few or none. Again, in the same vineyard, one kind would all be taken and another not touched. This would seem to indicate that the state of the weather at blossoming time caused the mischief, as all kinds would not be in blossom at once, nor would all vineyards. Concordis were affected most.

The first requisite to successful grape culture is a locality as free from early frosts in the fall and late ones in the spring as possible. Vines can be brought through the severe winters usually all right by laying down, covering the cane with a little fine earth. Covering with straw or other loose material, as is often recommended, creates a harbor for mice, which would destroy the vine. In sections where snow covers the ground all winter it would only be necessary to fasten the canes to the ground. There is another advantage in laying down vines besides the protection from cold. They are trimmed in the fall, when the weather is more comfortable than it usually is in March, with snow or mud ankle deep.

Having selected the locality, the next thing to be considered is the soil; for, although grapes will grow upon almost any soil not too wet, yet the best results in my opinion are to be derived from deep clay loam with a heavy subsoil, but not tenacious clay. Sandy land is much easier worked, but this is the only advantage and is nearly counterbalanced by the extra amount of pruning required, as the vines grow a much greater amount of wood on light land, but no more fruit. Besides, the fruit on heavy land is of better quality and has a heavier bloom. But the chief advantage is in immunity from disease, especially mildew, which I have never seen to any appreciable extent on clay loam, though it frequently destroys the entire crop on sandy land.

The soil having been selected, thoroughly underdrain it; for although vines will live and do well on high land without it, yet the cost of underdraining even upon high and apparently well drained clay loam, will often be covered in a single year by the extra yield; and on wet or flat land would be paid for many times over in a year like 1883, for underdraining, by carrying off the surplus water and preventing its evaporation, makes the ground warm, and in such a year, when the difference of a very few degrees means the difference between a partial or full crop and no crop at all, insures a crop, perhaps. I have found the ground well filled with grape roots at three feet in depth in undrained land; these in such a year would either perish or be of very little use, whereas if the subsoil were free from stagnant water, they would draw a vast store of food for the vine from a great depth. Again, the vines can be planted deeper, thus being out of the reach of the plow when plowing an average furrow, whereas if the ground is not underdrained, the roots seek the surface and are mangled and torn by plow and cultivator. It would seem to be useless to urge

reasons for underdraining did I not know that nine vineyards out of ten have no underground pipes in them yet.

To prepare the land properly I would summer fallow, making the land rich enough for a good crop of wheat, and subsoil both ways, ridging up in the fall in lands the required width.

*To be Continued.***Trimming Hedges.**

Very serious mistakes are often made in trimming hedges. To have a hedge look well it is important that it should be kept thick at the bottom; this can only be done by encouraging the growth of leaves; the moment the leaves begin to die on the lower branches, that moment the hedge will begin to lose its beauty, and gradually there will come unsightly gaps at the bottom of the hedge, which when once made are very difficult to cover up with foliage.

With a hedge properly trimmed it is difficult enough to keep all parts of it green and well filled with leaves; but with the usual method of trimming it is very nearly if not quite impossible. As the great enemy to the growth and vigor of leaves is shade, every effort should be made to bring all portions of the hedge into the sunshine; to this end the top of the hedge should never be permitted to overhang the bottom. To trim the sides perpendicular and the top square, is not only to make a stiff, unnatural and unsightly hedge, but it is bringing the lower part of the hedge where it cannot get as much sunshine as it needs.

The bottom of the hedge should always be the widest, and the top should round up somewhat in the form of a young cedar or hemlock tree that grows in the open field. This form will leave the lower branches in a position to get sunshine and air, elements so necessary for the growth of leaves.

It is almost the universal custom to trim a hedge with pruning shears, but if one cares more for beauty than time, the pruning knife is the best, providing it be used by one who understands his business, and also providing natural beauty is sought for. To use the shears year after year gives the hedge a stiff, unnatural appearance, but with a knife in the hands of one who understands natural beauty, the twigs may be cut so as to leave a natural appearance and yet keep the hedge in a symmetrical form.

These remarks apply more particularly to evergreen hedges, which to keep in perfect condition require even more care than a hedge of deciduous trees or shrubs. One of the principal causes for abandoning hedges is because of the fact that they have been so trimmed that they have become unnatural and unsightly objects.—*Massachusetts Ploughman.*

A crop of weeds requires as costly food as a crop of beans.

Work early and late, taking long "noonings" in hot weather.

Profitable amusement for the boys—Killing bugs, beetles and moths.

Regard with suspicion the durability of your implements after they have once been lent.

"No funds," exclaimed the exhausted field when the farmer attempted to make the raise of

New Lawns.

To keep lawns free from weeds, special care has to be given during the first year, as many weeds grow so rapidly that they crowd out the grass. Plantain, dandelion, and other perennial weeds are not yet deeply rooted during the first year, and may be easily pulled out, while in later years it becomes almost impossible to eradicate them entirely.

Vines on Houses.

We take the following from the *American Gardener* :—

It is generally supposed that vines make houses damp, for which reason there are not nearly as many cottages and houses beautified with vines as there should be. It is only when the climbers are allowed to cover the eaves and obstruct the gutters, or find their way under the shingles, that they become objectionable, and these conditions should, of course, be carefully guarded against. The *Gardener's Monthly's* remarks in this respect are well taken :—"Vines should always be kept cut down below the roof. It is a little trouble to do this once a year, but we cannot get even our shoes blackened without some trouble. Those who know how beautiful and how cozy looks a vine-covered cottage will not object to the few hours' labor it requires to keep vines from stopping up the gutter. Vines really make a wall dry. The millions of rootlets by which they adhere to the wall absorb water, and an examination will prove a vine-covered wall to be as 'dry as an old bone.' One great advantage of a vine-covered cottage, not often thought of, is that it is cooler in summer and warmer in winter than when there is but a mere naked wall."

Growing Pansies.

This is one of our most beautiful flowers, and though it is popular and to be found in most gardens, comparatively few people understand its proper cultivation with a view of obtaining the finest flowers. They will go into the grounds of the florist and express amazement at the great size and beauty of the pansies they see there, will forthwith purchase a supply for their own planting and will be charmed with them, and be determined to grow the same on their own premises, though their previous efforts have so signally failed. When asked how they had been growing them, they often reply, "Oh, I got some from a neighbor, who has large beds of them, but they are all so small." When told that they should sow the seed of the finest of those obtained from the florist as soon as the seed was matured—say some time in August—and that that was the only way to have fine, large flowers, the idea was jumped at. And yet that is the way to get them. Every August the seed of the largest and most desirable should be sown and the old ones dug up and thrown away. And we should say that this was easy enough to do when it is once known. In the winter the plants should be lightly covered. There are new pansies advertised every year, but any one growing them carefully and taking, as we say, the seed from the best every year, will be likely as anybody to have large, new kinds, and will thus save the expense of purchasing them, which, at most, last only for a single blooming. —[Telegraph.]

The Apiary.**Introducing Queens.**

A great many queens are lost when introducing them; but I have not lost one of the 25 I introduced the past year. My method is as follows: First find the queen you wish to supersede, cage her, and place the cage above the bees. It is better to have a one or 1½ story hive. I then move the quilt, put the cage with the wire down, and leave it in that position about one hour; by that time all the bees will learn that their queen is imprisoned. Now remove her, and put the new queen in the same place, leaving her until sundown, when she may be liberated, after which the work is completed.

The old way of caging the queen for three days, is a failure; for in that time the bees very often take up with a drone-laying queen, and the new queen is killed, and the colony about ruined.

Do the work in the morning, but if you cannot readily find the queen, close the hive again and wait; do not be in a hurry, for you can keep the new queen a week or more if necessary.

Assorting and Grading the Honey.

How to grade the honey, has for a long time perplexed my mind, and is still unsolved. No doubt there are very many others who are questioning the feasibility or practicability of the apiarist to grade or classify the particular kinds of honey, save two grades, viz., spring honey and fall honey.

In my opinion the true source from which the honey is gathered by the bees at any particular time, cannot be ascertained, from the fact that we have so very many different flowers in bloom at the same time.

I have kept bees on the improved plan for five years, and my observations have been that bees of the same colony do not gather honey from various kinds of flowers all at the same time; and that each bee gathers a particular kind of honey. For instance, if a bee starts out in the morning and works on a particular flower, it will invariably gather from that same source all day, and perhaps for several succeeding days, while another bee will visit some other flower in like manner.

At this time we have, in this locality, many thousands of different flowers in bloom, with our bees gathering from every source. It is simply spring honey. My neighbors say that I have my bees so well trained that I can handle them as though they were flies; but I have yet to see the colony of bees so well trained that they will all gather one kind of honey at the same time.—*John G. Smith in The American Bee Journal.*

Only 50 Cents.

Commencing with this issue, the FARMER'S ADVOCATE will be sent for the next six months to any address in Canada or the United States for FIFTY CENTS. We make this special offer to induce new friends to give the ADVOCATE a trial.

In the stomach of a cow killed in Logan county, Ky., were found 260 hairpins. The ferocious animal must have swallowed a lady.

Editor's Diary.

"Lock the lepers out," says the Kansas City Indicator, in reference to prohibiting the importation of live stock. It thinks that this precaution would be a gain of millions to the United States.

It would be a national calamity to eradicate our native stock from the face of the earth and supplant them with breeds imported for speculative purposes. If nature's law of "the survival of the fittest" were enforced, what would become of the thoroughbreds?

It is estimated that 25 per cent. of all the dogs in existence are affected by tape worms. Having passed through the dog system in their immature stage, some kinds of these worms infest cattle, others sheep and others swine. Eating carrion and other filthy foods is the most prolific cause.

We are receiving complaints of failures in breeding from different sections. This arises from mistaken ideas about thoroughbred stock. Any animal, male or female, that is gorged and nursed, is sure to have failures. Vigorous exercise and reducing the condition of the animal by lower feeding is the only remedy. Not only the animal, but also the offspring, is prejudicially affected by high feeding and lack of sufficient exercise.

In our last issue we referred to the destruction of noxious weeds and the late bill passed for their destruction. The same Act provides that all the black-knot found on plum and cherry trees shall be cut out and burnt. It also enforces the cutting down and burning of any peach, nectarine or other trees infected with yellows, and the destruction of all the fruit of trees so affected. It shall be the duty of the inspector appointed by the Council to enforce the provisions of the Act.

The wages of the English farm laborer are steadily advancing despite the deficient crops of the past six years, the consequent agricultural depression, and the slow advance of farm products. The average wages thirty years ago were barely 11s. per week, twenty years ago 12s., and they now average between 13s. and 14s. No doubt emigration has had some effect in enhancing the wages, and the extraordinary improvements in farm machinery do not seem to have any depreciating influence on labor.

One of the chief points in judging an animal is well-sprung ribs. This merit can be developed in young animals by a proper system of feeding. Feeding calves with highly-concentrated foods makes them flat-sided, while coarser foods will swell them out, developing a well-rounded barrel. The latter tendency is beneficial both for milking and beefing qualities—even also from an economic standpoint. The percentage of food digested remains constant in the same animal, under any variety of rations, so long as correct feeding principles are applied. Therefore give the calves plenty of grass.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the ADVOCATE, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c. per 4 ounces. Non-subscribers should not expect their communications to be noticed.

Voluntary correspondence containing useful and seasonable information solicited, and if need, will be liberally paid for. No notice taken of anonymous correspondence. We do not return rejected communications.

We do not hold ourselves responsible for the views of correspondents.

SIR.—1. Please inform me through your valuable paper what is the best way to treat a horse's mane that has been rubbed out by scratching himself in the stall? 2. What will take the pimples off him? 3. What is the best plan for loosening the old hair? J. H. S. WOODSTOCK.

[1. If there are hens about the stable, hen-lice are likely to be the cause. Remove the hens and white-wash the stable. Destroy the lice by a carbolic lotion, one part of carbolic acid to thirty parts water. Before applying this, wash the mane with strong soft soap suds. 2. To remove the lumps in skin, give a dose of purgative medicine, Barbadoes aloes, seven drams, either in form of ball or in solution; and every night until the pimples disappear give nitrate of potash, half a dram, and sulphur, one dram, in bran mash. 3. Boil a cupful of linseed with three or four quarts of oats. Give this quantity of the mixture three or four times a week.]

SIR.—I have a fine three-year-old heifer. Last January I noticed a lump on her lower jaw. It grew about as big as a hen's egg, and about the same shape; then it burst, and matter came from it, and it has not healed. The lump is now raw flesh, and bleeds when rubbed. It seems to be fast to the bone, and to have a hole in the centre, from which a little thick blood comes when squeezed. She is in good flesh, and does not appear to suffer. She had a calf last week, and is now giving a lot of milk. Have begun burning the proud flesh off the lump with blue vitriol. Some say it will kill her. Can you give any advice? A. H. R. HATLEY, P. Q.

[Such lumps on the jaw are often caused by diseased teeth. Remove the tooth and dress the sore with tincture bezoin co., night and morning.]

SIR.—You mentioned in your February issue something about the best and most speedy way for destroying Canada thistles. My back field was very thick with the thistles, perhaps the worst in this part four or five years ago. One of my neighbors summer fallowed, and never let the thistles through the ground for only one season for me. The field yielded good crops of fall wheat and hay since, and it has been and is now very clean. M. MULBERRY HILL, ONT.

SIR.—I should like to ask you if you can give me any remedy for a grub that is killing all the cauliflowers and has begun on the cabbage. It is a small white grub which eats at the bottom, or just below the ground. I have tried the burdock but that failed. What is the remedy? MIMICO, Ont. G. D.

[The insect is the cabbage grub (*Anthomyia brassica*). It works in the interior of the stem, so that the usual insect remedies are not effective. The best plan is to pull up and destroy the infested plants.]

SIR.—Please answer the following questions in next ADVOCATE. Which draws the easiest, a wagon or cart with wood or iron axle, or which is the same thing, a large or small axle? Some argue that a cart with a large axle draws easier in certain places, such as through plowed land or over any obstacle on the road, admitting at the same time that a small axle draws easier on hard, smooth roads. I think that a small axle draws easier under all circumstances. Which idea is right? RODGER HILL. K. C. F.

[The smaller the axle the easier the wagon or cart will draw. The reason is not because there is less surface for friction on the axle of the small wheel, as some suppose, but because the leverage is greater in small axle. This has nothing to do with the condition of the roads or the nature of the obstructions; but a large wheeled wagon will always draw easier than a small one, the other conditions being equal; and a wagon with broad tires will draw easier on a soft road than one having narrow tires.]

SIR.—It used to be said when I was a boy that mares carried horse colts twelve months and mare colts eleven months. I long since learned the fallacy of this statement by experience, and this spring I have observed that fifteen mares foaling on this farm have carried their foals just eleven months and seven hours from time of service. Now if they were all filly foals it would go to establish the old theory, but out of the fifteen foals this year twelve are horse colts. The extremes are ten months and eighteen days to twelve months, and both extremes are mare foals. My experience of many years in horse breeding proves beyond any doubt that mares carry mare foals as long as horse foals, and that the sex has no influence whatever on time of gestation. WALKERVILLE, ONT. J. D.

SIR.—It is a matter of regret that the sons and daughters of our farmers take so little interest in their own self-improvement after their school days are over. While it is not difficult to point out many leading men in every profession, business and occupation, who are the sons of farmers and occupy positions of honor, it is also true that they have risen above the mass by their perseverance and ambition. On the other hand, is it not too true that the families of farmers, as a rule, leave education and self-improvement behind them when they leave the public school, where for a few seasons they have gone through the routine of school work in a mechanical sort of way? How few of us have been roused to strive after that higher intellectual life, which can be attained by continued reading, study and self-improvement! I wish to illustrate this by calling attention to the very limited number of farmers who take advantage of the libraries attached to mechanics institutes in this country. If it be true that farmers nor their families can avail themselves of any extended use of the reading rooms and the periodicals, newspapers, &c., contained therein, there can be no excuse for the neglect to use the libraries. Within a radius of 25 miles from where I live there are seven mechanics' institutes, whose libraries contain in the aggregate (2,000) twenty thousand volumes. When I mention the names of Brantford, Galt, Dundas, Paris, Woodstock, Ayr and St. George, it will be seen that hundreds of farmers are living within such proximity to these places that the trouble of procuring the books is reduced to a minimum. Still I doubt if the names of twenty-five farmers in all are to be found in the list of members of the whole of these institutes. This is not a flattering record for a section of country dotted every few miles with schools and churches, and claiming no little pre-eminence in other respects. Now, if parents would take some interest in this question and urge upon their children to devote a portion of their time during the winter to reading and self-improvement, the effect would undoubtedly be good, and such would influence for good their whole future lives. Newspapers are all well enough in their way, but solid information can best be had from books. History, biography, travels, have all charms peculiar to themselves, and surely the thoughts and opinions of the great minds of the day should be as important to the farmer as to the mechanic or the clerk. I throw out the idea, and hope you will help to work it up. SOUTH DUMFRIES. YOUNG CANADA.

We frequently receive postal cards and letters without any signature or address upon subjects of not the slightest interest to any person but the writer. We wish our readers to distinctly understand that no notice will be taken of such communications.

SIR.—As the time is about at hand when attention should be paid to the destruction of noxious weeds, I would ask you to consider an idea or two from one who has taken some interest in the question in this township. The operation of the old Canada Thistle Act has for over 18 years been a failure—a full and complete failure. We have made a spurt or two in this township to do something towards forcing pathmasters to prosecute those who neglected to cut the weeds. A few were fined last year, but still the evil has continued to spread with alarming rapidity. Last year was an extraordinary year for thistles, and 1884 promises even better. Now we have the new Noxious Weed Act of 1884, which is a comprehensive measure, as it includes all those weeds which are injurious as well as providing for the burning of black knot on plum and cherry trees, also peach trees infested with yellows. I see that the authorities in some of our neighboring towns have instructed their constables to enforce the law, and bills have been posted to that effect. What will be done remains to be seen. But in the country it would be better if the duty of carrying out the law were placed upon Government officials. As it is a matter which affects the whole Dominion, the suggestion that the Customs and Revenue officers should do the work is a good one, and as these men are independent of the popular will, they would have no delicacy in enforcing the law. At this season of the year, when their labors are lightest, they can do something useful for their country and earn their salaries by attending to the performance of this work. There are several men in each of the towns of Paris and Woodstock who have literally nothing to do. Time must drag heavily on their hands, and the humiliation of drawing salaries which are not earned must be depressing to every right-minded man. At all events let us have the new act enforced and any way which will do it best is the best way to do it. RICHWOOD, ONT. J. B. McL.

SIR.—Can you tell me where I can obtain in Canada ear tags for sheep, and oblige. B. L. PORT PERRY, Ont.

[See the advertisement in this issue of J. Stevens & Co., Toronto.]

SIR.—Permit me to suggest to breeders and owners of Ayrshire cattle the importance of joining the "Association of Ayrshire Breeders of Canada," that we may form one association of strength and intelligence, fitted to consult and determine upon a fixed course in all matters touching the importance of maintaining the character of Ayrshires as the dairy herd best suited to the general use of the farmers and dairymen in all Canada, and at the same time be enabled to collect facts touching all points of importance worthy of publication that will communicate to the people who require dairy stock the advantages derived from the use and care of Ayrshires. W. M. R. PLANTAGENET SPRINGS, ONT.

I have been greatly interested in some of the sentiments advanced and suggestions made in the June number of the ADVOCATE, which I think are timely. With your permission, Mr. Editor, I would like to refer to a few of them, which seem of more than ordinary importance to me. In the dairying line, Prof. Arnold's "Gambling with the Weather" is well worthy of perusal, and would, if acted upon, be a vast saving on many farms where in every summer that drought occurs the shrinkage and falling off in dairy cows is enough to consume the profits of the whole year. How few farmers know from experience anything of the possibility of soiling, or of pastures composed of mixed grasses, etc. Then there are suggestive ideas thrown out on page 162, in reference to dairying and beefing breeds of cattle for their respective purposes. If the conclusions of the editor are not overdrawn (and we think they are not) it proves the absurdity of trying to work up a herd of general purpose cows. It seems as reasonable to look for fine wool and a first-class mutton carcass in a sheep, as a first-class milk and beef combined. And yet this is what thousands are doing with loss to themselves and country. All this is of greater importance when we remember that "grass is king" now and probably will be. A hint about experimenting is also given on page 165. I have long entertained the same opinion that if every progressive farmer would make some accurate experiments each year and report results, it would do more toward bringing about an advanced system of farming than all that is done under legislative nursing. J. S. WOLVERTON.

[We are glad to receive honest criticisms on the ADVOCATE, favorable or unfavorable. We would be particularly well pleased to receive reports of the experience of farmers who have acted on hints obtained from the ADVOCATE.]

SIR.—I enclose in a box four worms. The one sewed with black thread was found cutting off the potato stalks just above ground, and found under the ground about half an inch; the one sewed with white thread I found cutting oats the same way, and both doing great damage. Are they both of one species? Are they known in other places? It is the first here. Is there any remedy? If so please answer in the ADVOCATE. COURTRIGHT, ONT. S. P. D.

[The worm sewed with black thread is the ordinary brown cut worm of the genus *Agrotis*. The other is the larva of the *Hadena arctica*, also a cut worm. Both forms are general throughout Ontario. For description see page 203.]

SIR.—A blue insect is eating the hearts out of the buds of my grapes. What is the remedy? C. J. ASKIN, Ont.

[The insect is called the grape or blue beetle. It may be destroyed by hellebore; by shaking the vines over a pail of water into which they easily drop, or by shaking the bushes over a cloth saturated with coal oil, the fumes of which instantly smother them.]

SIR.—What color are bronze turkeys? Also a cure for diarrhoea in fowls. A. M. BOND HEAD.

[Bronze turkeys, as their name implies, should be bronze. The cause of diarrhoea is a too scanty supply of grain, which necessitates an excess of green food, or an unwholesome dietary of any description are the usual causes of this complaint. The following will be found as good cures:—Five grains of powdered chalk, same quantity of rhubarb, and three grains of cayenne pepper. If this does not speedily check the relaxation, give a grain of opium and one of powdered ipecacuanha every 4 or 6 hours.]

SIR.—A brown grub is eating everything in my garden. The garden is heavily manured. What should I do this fall to the land to get rid of them? I believe they are very bad in other parts of the Province. D. S. STONEWALL, Man.

[If the grub eats off the plants near the surface of the ground, it is the cut worm. For description and remedies see page 203.]

SIR.—If a man imports stallions from Canada into the United States free of duty, how long has he to keep them before he can sell them? Has he to keep them for service for one season? J. C. KNOXVILLE, Iowa.

[All stock exported from Canada to the United States for breeding purposes are duty-free, there being no stipulated time as to how long the owner may keep them before sale or for service.]

The Household.

Training Young Housekeepers.

Among the habits our girls should acquire at an early age is the habit of housekeeping. The baby who sits up in her high chair at the table and works at a bit of dough, while her mother makes bread, is taking her first lesson in the culinary art, and if these lessons are continued day by day, increasing in difficulty as she becomes more and more capable, she will learn the mysteries of cooking and of housekeeping, little by little, unconsciously, and without any difficulty.

The amount of time spent by children in poring over their books at school is very disproportionate to the results they have to show for it. The fact is, until a child reaches a certain stage of mental growth, he cannot understand grammar and the higher branches, and going over them in parrot-like rote does him no good. Neither does it do him any good to go over and over what he already knows, as many children are continually doing in our schools. A little girl or boy had better be learning how to hem and run and darn, how to make bread and wash dishes and tidy the room, than be going stupidly over what they already know, or over what they are not yet old enough to understand. When Henry Ward Beecher was eight years old his mother kept him from school and taught him to hem towels and perform the minor household tasks, greatly, as he says, to his advantage. The little girl who is required to perform daily such domestic labor as is suited to her ability is receiving in this as essential and veritable a part of her education as she is when studying and reciting her lessons. Both kinds of educational development should proceed together, as they may easily do.

The transitional period from girlhood to womanhood is an excellent time for domestic training. Confinement to books is then injurious; the mind needs a variety of occupation, and the body requires constant change of exercise. This is abundantly furnished by the different classes of work required in the household. A year or two at this period devoted to practical mastery of the various domestic accomplishments is of inestimable value, and gives the right direction to the budding woman, who, so far as she is "true womanly," begins to look forward to a home of her own and prepare herself to preside over it worthily. At this time the habit of housekeeping may be formed, and when once formed it will not easily be thrown aside. The girl who has learned to look after the various interests of the household will unconsciously exercise a wise supervision over her wardrobe, her room and herself when she is away from home at school, and when she is established in a home of her own she will easily wear its honors and its cares.

The arts of which the kitchen is the centre have of late years come to be considered by some ignorant people as menial, as though any art or labor necessary to the happiness and comfort of the family could be menial. No office performed by the loving hands of a mother is a menial office, though the very same in unloving and unwilling hands may seem a

degradation. It takes brains to learn to cook well, to wash and iron well, to get meals regularly and on time, and to have the various weekly tasks so arranged and adjusted to each other that they shall be each done in season without haste and without worry. The woman who can do this could with the requisite training take honors in any school or college. She does have honor at home, and well does she deserve it. A kitchen presided over by an intelligent, quiet, skilful housekeeper, is second to no room in the house in point of attractiveness. How different is it from that of the average ignorant, careless, wasteful, foreign "domestic."

There is more need now than ever that our girls should learn the arts of housekeeping. The tide of immigration is continually bringing to our shores those who come to work in our kitchens, and who must be taught how to work and hold up to right standards. The woman who is merely at the mercy of servants is in a pitiful case, and unless she knows as much as they do she is at their mercy, and they are not slow in finding it out or in taking advantage of their knowledge.

Homely duties are ever recurring in every sphere of life, and they who have been so taught and so trained that the right doing of these duties has become second nature, have a great advantage. She who can "turn her hand" to whatever domestic task is demanded by the exigencies of her life, is armed against a thousand wants and has that self-help which is the only true help. The patience, the watchfulness, the skill acquired in the steady and monotonous discharge of homely duties, when applied to the solution of new problems and new tasks, will be rewarded, and she who has learned fidelity over a few things must become a stress of many things.

Farmers' Homes.

Why should not a farmer's home be a veritable little paradise? Who else has so good an opportunity for beautifying his grounds until they shall far exceed in beauty and elegance the grandest possibilities of any cramped and pent up city lawn? We neglect this altogether too much; we have so much to do, we say, in looking after our crops that bring us money, that we have no time to spend with flowers, shade trees, etc., which simply ornament the place, and bring no money. As an investment even, we believe this to be a mistake; but aside from the financial side of the matter, we think it pays to take a little time—considerable, if necessary—to improve the external appearance of our homes. Shade trees are at the disposal of every farmer, flowers and plants are cheap, and easily obtained and cultivated, and we believe it is as much every man's duty to make his home and its surroundings the most beautiful and attractive place on earth, as it is to pile up a large fortune for the benefit of future generations and lawyers. We do not expect to come this way again, so why not enjoy as much as we can as we go along.—*Ex.*

THE HONEYMOON.—Wife (after a little "tiff"): "But you love me, dear"—(sniff)—"still?" Husband ("Cross old thing!"): "Oh lor', yes, the stiller the better!"—[Punch.

Family Circle.

A DANGEROUS GUIDE.

CHAPTER I.

Fraulein Schwartz stood at the door of her cottage, looking anxiously down the road between the mountains. She shaded her eyes with her brown palm and peered along the winding way, which was visible for a mile, except where it curved round the base of a rock too ponderous to be removed. Yes, at last there was no mistake, there was a traveller walking toward her cottage.

"Time enough, too," she soliloquized. "Since they opened the new road on the other side of the hill all the carriages go that way, and no one comes here except some poor tourist who can't afford to ride, or an artist who carries his brushes on his back and little enough besides. Who is going to buy my beautiful carvings that I got from Paris now, I wonder?"

It certainly seemed hard to the fraulein that a diversion of traffic should go so near ruining her, for she had forsaken her German home some years before and settled in Switzerland, in the hope of increasing her income by furnishing the ever-increasing horde of travelers with necessities in the shape of food and lodging, and luxuries in the shape of carved beads and trinkets of all sorts.

The tourist who was now plodding up the neglected track was the first she had seen for two days. "Good morning, Sir," she said, as soon as Hardy was within easy hail. "It's a very warm day, Sir."

"Warm!" ejaculated Hardy, throwing himself on a bench; "it's melting. I've left a good part of myself on the road. If this goes on I must erect a monument to my remains in Switzerland when I go home. Drink, my good woman; I am parching."

But before he had finished asking for it she had brought him a large jug of milk, which he seized and drained. "That lubricates the thorax satisfactorily," he remarked as he finished. "Now, my good woman, I've a friend a little way behind. Can you put us up for the night?"

"Yes, Sir; I've two nice clean beds."

"You're sure they're clean?"

"Oh, yes, Sir; they haven't been slept in for a long while."

"Oh, haven't they? You had better run a warming-pan through them, then, if you have such an article; if not, my hat on the end of an alpenstock will do just as well, for it's nearly red-hot; I'll just go in and have a wash and a shave if you will show me my room."

"This way, Sir, it's got a beautiful view."

Hardy picked up his knapsack and followed her, remarking to himself: "Beautiful view! That's what they always say when your window opens on the back of a cowshed."

Probably he would not have gone straight to his room had he chanced to look along the road in the direction of the summit of the pass, for there stood a charming little maiden marshaling her goats preparatory to driving them to the inclosure for milking. But though he had not seen her, she had caught sight of him, and after her goats were safely housed she tripped down to the cottage to see who had arrived.

Life was rather monotonous among the mountains, and, besides, Nina had a special wish to be seen to-day, for it was her birthday, and on these festivals she was permitted to wear a necklet which a rich Englishman had given her two years ago for nursing him when he was lying ill at the cottage. So Nina left her goats and ran to find out who had arrived.

She reached the cottage, and was just passing in at the door, when she heard a footstep behind her. Curiosity urged her to look round, but maidenly dignity forbade the step, so she passed on, wondering if the stranger would speak. He did not; but she felt an arm steal round her waist and a kiss on her cheek.

She darted round in indignation, and met the amused look of Walter, her betrothed. "Why, Nina, are you going to be angry with me for stealing a kiss on your birthday?"

"Who else did you think it could be, little one? Ah, I did not tell you I was coming over the pass to-day so as to see you before I return to the Brunig."

As he spoke he held out a bracelet of carved wood—not very valuable, perhaps, but it was his own work. Nina lifted up her little face to thank him with a kiss as he bent to fasten it round her wrist.

"Nina, who gave you that necklet?" he asked as his eye caught sight of it.

"Mr. Linton, an Englishman, two years ago. Come, my Walter, you must not be jealous. I have never seen him since; I do not know where he is or anything about him."

But Walter's face did not resume its gay look; he knew something of the free ways of certain travelers, and did not like to know that his Nina had taken a present from an English milord.

"I must go and milk the goats now," continued Nina: "come and help me."

But her stepmother's voice at that moment called her into the cottage.

"Wait for me a minute, Walter," cried Nina as she ran in. Walter, however, strolled slowly toward the goats, thinking he would begin the milking without waiting till the fraulein had said all that she wanted.

As Nina disappeared through the back door, Hardy came out of the front, his face covered with lather, and in a state of comical distress.

"Confound it all!" he exclaimed, "my razor is in Linton's knapsack. I thought I heard a man's voice here, too; where is he?"

He was surprised to feel an arm grasp his, but immediately drop it with a little shriek.

"Oh, I beg your pardon, Sir; I thought you were Walter."

"I'm sorry to say I am not," began Hardy, but Nina commenced to laugh as she saw his condition.

"I almost kissed you without looking," she said with a smile.

"Don't let any consideration for me stop you," replied Hardy gallantly; "but, perhaps, if you could get me a towel the operation would be pleasanter for both of us."

Nina had tripped away before he finished, and soon returned with the towel. But instead of giving it to Hardy, she began to signal with it. This was too much, and he took it from her.

"Please postpone your signals for a moment, my little maiden," he said, but she took no notice.

"Why does he turn away and go on still?" she asked.

"Who?"

"Walter."

"I give it up, perhaps because he sees me."

Nina ran away in the direction of the goats, and was soon out of sight.

"Corydon and Phyllis have had a slight row," mused Hardy; "however, I suppose they will make it up again; it must be a serious business to quarrel with the only available lover within twenty miles. Hallo! here's the lazy fellow crawling up at last. Come along, old tortoise!"

A handsome young man, with light wavy hair and mustache, came slowly up, and sat down on the bench with a sigh of relief.

"I've been resting, Jack," he said.

"I would be more worthy of remark if you hadn't."

"You walk at such a pace, you know."

"So do you, and a jolly slow one it is. Where's my week? Lend me your knapsack. Lock here, you sit out here for five minutes and recruit yourself with some milk while I shave."

Hardy disappeared into the house, but a moment after his head appeared out of the window, over the bench on which his chum was lying.

"This is first-rate," he remarked; "I can go on shaving and listen to your inspiring conversation at the same time."

"What beautiful scenery!" exclaimed Linton, looking down the valley.

"Al," returned Hardy, "and the milk is on a level with it."

"We shall have this view from our room."

"Yes, but a little more furniture and a little less scenery would be more my form. Look at this looking-glass—one eye at the time please; there isn't room for more on it."

"This valley always brings happy thoughts to me," said Linton half to himself.

"Can't wonder at it," returned Hardy as he gave a finishing touch to his chin. "You were laid up for a week with a sprained ankle somewhere about here, I think, two years ago, weren't you? And we nearly lost ourselves last night trying a short cut."

"That was a happy time, Jack."

"Which?"

"When I sprained my ankle. I was nursed by the most charming girl. I wonder if she lives here now. We were like brother and sister before I went away."

"I've seen her, my boy. But you must take care; she's got a strapping young fellow hanging around who's as jealous as Othello. I'm afraid I've caused a little heart-burning already. Oh, I am a sad dog!"

"What a fool you are, Jack."

"All right, don't you make yourself one as well. Here's the old dragon."

Fraulein Schwartz had heard voices, and came out to welcome the new arrival. She well remembered Linton, and received him with effusion.

"Nina will be back in a minute or two, Sir; she has only come to milk the goats. She has grown since you saw her, Sir."

"Ah, she was a girl, then; I suppose she is a woman now."

"You shall see, Sir—here she comes."

Linton watched her as she came down the road, not altogether pleased to see a tall young fellow with her.

On the other hand, Walter was so vexed at seeing two strangers, evidently waiting her return, that he had half a mind to turn back and retreat over the pass in anger. But his jealousy kept him near his betrothed; he could not let her out of his sight.

"Well, Nina," said Linton, as she came up, "I've come back, you see, as you asked me two years ago."

"I am glad to see you, Sir," she replied demurely, for she felt that Walter's eyes were on her.

"Fraulein Schwartz made me expect to find you quite a woman, but you are still my little Nina, I see. Are you grown too big to be kissed now?"

"Don't be a fool, Charlie," whispered Hardy to him; "can't you see that fellow looks as if he would like to murder you?"

But the question had been already decided by Nina's drawing back her hand from Linton's and walking up to Walter. The latter, however, did not look at her, but gazed moodily across the valley.

"A sweet youth that," remarked Linton carelessly.

In the meantime Walter was clenching his hands in his pockets, and muttering to himself:

"She told me that she did not know where he was, and he was in the house all the time. And he would have kissed her."

CHAPTER II.

"Well, Charlie, I suppose we are to push on to Werhausen to-day," said Hardy as they sat outside the cottage next morning over their breakfast.

"Yes, I suppose so. Where's Nina vanished? I want some more milk."

"You've about a pint left; let Nina alone, my boy. As it is, that fellow Walter seems to be unable to make up his mind whether to be angrier with you or with Nina. Look at him now, his scowl is enough to turn the milk sour."

"Oh, bother Walter; I've come twenty miles to see Nina, and I shall ignore Walter's existence for the next hour. I suppose we ought to start at nine."

"Yes and we shall have all our work cut out for I don't mean to try any more short cuts without a guide."

"Perhaps Nina can tell us whether we can get one. I'm going to see, at any rate, Nina."

She came running out, and Linton made her sit down while he questioned her about the possibility of obtaining a guide to Werhausen. His excuse for detaining her was

not a very happy one, for she at once said that Walter was returning in that direction to-day and would be glad to guide them.

Hardy looked at Linton interrogatively.

"I wish, Jack, you'd try to arrange it with him," said the latter; "he won't do it if I ask him, I'm afraid, and time is an object now."

"All right, I'll try what I can do," replied Hardy. "I think he'll come if only to insure our being at a distance from Nina."

Walter was not very tractable; at first he refused, but presently yielded, apparently because of some idea which had struck him. He recommended that a start should be made at once, to which no objection could be well made, so the friends packed up their knapsacks and were soon ready.

"Good-bye, Nina," said Hardy, holding out his hand, "don't forget me before this afternoon."

"Good-bye, Nina," echoed Linton. "Come, Hardy, I'm ready. By Jove! though, I've left my alpenstock in our room. Just get it for me, Walter."

Walter had brought out the baggage from the room, so he could not refuse as he was requested. The moment he disappeared Linton drew Nina to him and kissed her.

"That's a good-bye kiss, Nina, for I suppose you'll be married long before I come to Switzerland again. Mind you don't tell Walter."

But, as Hardy knew, there was no need to tell Walter. The bedroom window overlooked the group, and the lover had been a spectator of what had happened. Hardy saw his face for a moment with an angry flush upon it, but he did not see the intense hatred which shot from his eyes as he drew back into the room. However, in a few moments he came out apparently calm. He kissed Nina and the fraulein, who only came out at the last minute with the bill which she had been concealing, and soon the travelers were only a speck in a distance to the inhabitants of the cottage.

Linton did not give a thought to the jealousy which he had excited in Walter's mind; in fact, he was scarcely aware of its existence. He did not know that the guide's was an intensely passionate and suspicious temperament; that for one thing he knew he imagined a dozen; that he always made his visits to Nina unexpectedly in order to know whether she had any other admirers than himself. Had he known all this, he might have taken seriously the taciturn way in which the guide plodded on, never offering an observation, and replying as little as possible to what was said. He even refused a cigar which Hardy offered him, a very rare thing for a guide to do.

"I shan't be sorry when we drop our new acquaintance," remarked Linton; "he is very uninteresting."

"I shan't care if that's his worst fault," remarked Hardy.

"He certainly has one rather more annoying; he seems to be able to pick out the worst bits of ground in the district. I'm getting tired already, and we haven't walked three hours."

"And with one rest. This is a most wretched sort of wilderness. Have you ever been near here before?"

"Never. I'm utterly out of my reckoning."

"It seems to me," said Hardy, "that Werhausen lies a good deal more to the north, while he is working us continually to the west."

Ask him.

Hardy did so, but elicited no answer except that the way they were going was the right one.

"But look here," exclaimed Linton, testily, as they had to help each other up a rock; "we don't want to do any climbing to-day; we want to get to Werhausen, and the road can't be over a mountain."

"If you are not content to follow me," replied Walter surlily, "it would be best for you to go your own road."

This was a finish to the conversation, for, as the tourists had already supposed, they were utterly out of the ordinary track, and neither of them had an idea of their position. Linton received the man's impertinent answer with a philosophic shrug, resigning himself to the unpleasantness of a harder walk than he had anticipated, but Hardy, who had caught sight of his face as he spoke, began to feel seriously uneasy.

"I say, Charlie," he said, "don't do anything to make that fellow angry."

"Make him angry? It's the other way, I think. I'm getting fairly savage with him for leading us this dance."

"I wouldn't tell him so if I were you."

"Why not?"

"Well, you see, if he were to become unpleasant it would be rather awkward for us, wouldn't it?"

"I don't see that; we are two to one. Besides, why should he turn unpleasant?"

"He saw you kissing Nina this morning."

"Did he? I can't help it; he shouldn't have been looking."

"Unfortunately, he was, and I can't help thinking he means to pay us out."

"You think he is taking us this round by way of administering a lesson to us? By Jove! if I thought so—"

"Do keep still, Charlie; don't make him angry."

"Why, what on earth's come over you, Jack? Surely you aren't afraid of that fellow?"

"Yes, I am, I confess it."

"Why, I believe I could tackle him single-handed, and I'm sure you could."

"Yes, but we are in his power. If he means mischief he has nothing to do but to choose his time for doing it."

"Good heavens, Jack! do you mean that he thinks of losing us on the mountain?"

"I don't say he does, but I fear it. And if he does, how can we prevent him? All he has to do is to suddenly run off; we can never overtake him, as he knows the way well. In half an hour he would be out of sight, and we'd never see him."

Linton grew pale, but recovered himself. They were now walking along the side of a buttress of the mountain, up which they had been toiling. The ascent was very gradual, and they could talk without undue exertion.

Walter was a couple of yards in front, stolidly striding along.

"What shall we do, Jack?" asked Linton, who recog-

nized in his companion a stronger mind. "Is it any good to tell him that I meant nothing by kissing Nina, and that I shall never see her again?"

"No, no; we must not let him suspect us or it is all up. When we come to a good place we will propose stopping to eat something; one of us must keep near him all the time. Or, better still, you must get faint and insist on taking his arm. You must never let it go; as long as he is with us we are safe, for I scarcely expect his wish for revenge is strong enough to let him risk his own safety."

"I believe he means to thoroughly tire us out before he does anything, and that won't take long, so far as I am concerned; my legs are beginning to give way, and he is going on as fresh as paint. Let's bring matters to a crisis."

"Hi, Walter!" shouted Hardy; "we're getting hungry. We'll stop here and have some bread and cheese."

"There is a much better place a little further on," replied the guide, "where there is a spring."

"Shall we go on?" whispered Hardy to Linton. "Be as careless as you can."

"As you like; if there is a spring it will be a blessing."

"All right, let's go on if it isn't far," said Hardy aloud.

"But my friend is knocked up; you must give him your arm, and I'll take that knapsack, if you like."

Linton moved forward to take his arm. Hardy had already taken hold of the knapsack so quickly that the guide had no time to move away, even if he had wished. He made no objection to the proposal, and Linton put his arm through his, Hardy keeping close in the rear. They could still talk to each other, for they knew that Walter did not understand English.

In this manner they plodded wearily on for another mile, no slight distance when the path is over rocks and loose stones. The scene was a most impressive one, but at present its exceeding desolation was the characteristic which the two friends felt most strongly. Not a house was in sight, and scarcely a tree; nothing but bare rocks and earth. Below them lay a deep dark valley, with a rushing torrent which now looked a mere white thread; above them black rocks, capped with everlasting snows. For all that they could tell theirs were the first human footsteps that had ever fallen in this desolate spot.

Walter had spoken truth. There was a spring ahead of them, and the sight of it revived their spirits. They took it in turns to drink, one filling his cup while the other mounted guard over the guide. The latter seemed to be conscious by this time that he was the object of suspicion, but his action and look did not alter. He ate his crust and drank the water without making any attempt to move away from them, and Hardy half began to hope that he had been wronging him. At any rate, he determined to make one more attempt at conciliation.

"What time shall we reach Werhausen, Walter," he asked.

"I shall get there about six," he replied.

"Allowing how long for rest?" asked Hardy, purposely of taking no notice of his using the word "I."

"You can't rest as long as you like," was the answer, "but I am going on."

"What do you mean? We've hired you as our guide, and you'll have to stop or go on as we wish."

"I am not your guide. I would not take money from you if I were starving. I only brought you here to take you away from Nina. It will be a long time before you find your way back there again, my fine young gentleman."

This was a declaration of war, and all felt it to be so. Walter rose and faced them, standing about two paces off. Hardy looked straight at him and said: "Do you mean that you have brought us out of our way because of some harmless flirting with Nina?"

"Yes," shouted Walter, losing all command of himself, and making his voice echo down the mountain, "yes, you would come with your full purses and your smiling faces to turn her away from me, who love her and work for her, and live from week to week on the chance of seeing her. You give her fine presents which she wears, and she tells me with an innocent smile that she does not know where the gentleman who gave them to her has gone, and ten minutes afterwards I find him at the cottage and wanting to kiss her. She little thinks I saw him kiss her this morning when he sent me in to fetch his alpenstock. But now it is my turn, you are in my power."

Hardy stepped forward to seize him, but he stretched out his hand.

"Did you hear that?" he asked. "Look down the valley."

A roll of thunder reverberated from mountain to mountain, and instinctively the two friends looked down into the dark valley below them. At the same moment, with a mocking laugh, Walter sprang down the rock. His ruse had succeeded, and they were alone on the mountain.

But his triumph was a short one. Exasperated beyond measure at the trick, desperate as the state of affairs was, Hardy seized a stone as large as his two fists and threw it after the retreating guide. He was a good cricketer and his missile sped truly, hitting Walter on the left shoulder. With a cry he fell forward, rolling over several times before he stopped. The two friends leaped wildly down the mountain in pursuit, reaching him while he was still on the ground. Linton seized him with a grip that showed that he meant to give him no further chance of escape, when a groan broke from the guide's lips.

"Gently, Charlie," said Hardy, "you're hurting him; I'm afraid he's broken something. What's the matter, Walter?"

"My arm," replied the guide feebly; "I think it is broken."

Hardy knew something of surgery, so he examined the arm, and found it was broken below the elbow. It had become doubled up underneath him as he fell. Hardy tore up their handkerchiefs and bound the arm up after setting it as well as he could; a shirt from his knapsack was made into a tolerable sling, and when all had been done that could be done, they helped Walter back to the spring and lashed his shoulder and head, the one bruised by the stone, the other by the fall. He received their attentions without thanks, but without any objections.

He was evidently in great pain, and appeared to have forgotten the recent excitement that he was in.

"Now, Walter," said Hardy after a short rest, "do you feel well enough to walk again? You can take my arm, and when I'm tired Linton will help you along. We must rest every now and then, for we don't feel very fresh. How far is it to the nearest house?"

"Two hours' walk away there is a cottage; we can't reach Werhausen to-night. We must start at once, or we shall have the storm on us."

Without more talk they rose and set off. It was a weary tramp they began by retracing their steps for nearly an hour, and turned off by the side of a pine forest in the direction of Werhausen. By this time it had come to Linton's turn to help the invalid, and he could not refrain from telling him how mistaken he was about Nina.

"She had no idea I was coming to the cottage: I did not know it myself until a few days ago. And that neck-let that I gave her two years ago was when she was a child and nursed me when I sprained my ankle. Besides, Walter, when she found that you were angry with her for wearing it, she determined to give it back to me. Look here, here it is; she gave it to me before breakfast this morning, when you saw us together, and were so savage about it."

"Is that all true?" he asked.

"Every word, on my honor."

"Then I have been a jealous fool, and have come very near being something worse. I would have killed you if I had dared as we climbed up the side of the mountain this morning, and now you are saving my life, though you know I meant to leave you on the mountain to die. But look, the storm is coming; you must run and get me. The cottage is round that next point; you will get there in time."

"No, you must come to; walk as fast as you can."

"No, leave me; I will shelter under this rock till it is over."

"Nonsense! you'll never be able to walk a yard by yourself. Lean on me as much as you like."

Walter had been getting more feeble during the last half-hour, and had once or twice shown symptoms of fainting; it would have been almost certain death to leave him alone now with a storm rapidly approaching. So the two friends toiled painfully on with their heavy burden, footsore and weary, and scarce able to drag one foot before the other. They had abandoned all hope of reaching the cottage before the storm broke; they knew that when once it had begun there was very little chance of proceeding, and hope of safety had almost died. Suddenly, however, Linton caught sight of a peasant making all speed for the shelter of the cottage; they shouted to him and he came to their assistance. Another moment and the rain came, a thick mist filled the air, and for all they could tell they might be a hundred miles from the little chalet. Fortunately the peasant knew the vicinity of his home blindfold, and after a struggle against the tempest, they were safely housed from its fury.

A night's rest revived the strength of all three. Under Walter's willing guidance they accomplished in a few hours the rest of the distance to Werhausen, where medical aid was procured. Before they parted Walter took Linton aside and begged him to let him have the necklet which Nina had returned to him.

"I will give it to her again," he said, "and will ask her to wear it always, and when I feel suspicious or jealous again I shall look at it, and it will remind me of the time that we have spent together on the road to Werhausen."

Sea-sickness.

Those so fortunate as to be exempted from sea-sickness are apt to exhibit their selfishness by making light of the sufferings of their less fortunate companions.

A writer in *Chambers' Journal* utters the following protest against such an exhibition:—

Some are guilty of real unkindness at such times; will "chaff" their unfortunate companions and offer them unsuitable refreshments. All this is very cowardly, and deserves the strongest censure. Could they but realize for themselves what sea-sickness is, they would at least refrain from adding to the annoyances which it entails.

The poor Irishman stated the case very neatly who said to his friend, "O Mike, it's just awful! At first, you're afraid the ship will go down; but afterwards, you're afraid that she won't."

It is too often the case, however, that the victim of sea-sickness has to endure ridicule as well. The crowds that sometimes assemble at watering-places to watch the landing of the drenched and exhausted passengers, too often behave in a way that does little credit to the civilization of the nineteenth century.

Few things are more distressing than sea-sickness, teeth-ache, and various forms of nervous disease. Yet they receive little sympathy, because they do not usually prove fatal.

Minnie May's Department.

MY DEAR NIECES,—The competition this month has been largely responded to, and after due consideration the prize of a silver pickle-cruet has been awarded to Miss Jane W. Ferguson, of Kingston, Ont. Now, we offer a prize of half a dozen silver-plated teaspoons for the best method of canning or drying vegetables for winter use. All communications must be in by the 25th of July.

We received a very good essay on "Woman's Influence" from Miss Cora A. Argue, which, we regret to say, was too late for competition.

Now, a few words to those of my nieces who are housekeepers, and who desire to do their work as easily and economically as possible, we recommend the use of the coal oil stoves, which are being so generally adopted. They are most convenient; the cooking for a family of ten can be done equally as well as for a smaller one; two or three steamers can be used on top of the kettle, over one lamp, and the oven over the other. You can roast, fry or boil meat, do all sorts of baking and even iron by them, all at the cost of a few cents a day. They save heating the house, especially in warm weather, and no fuel is wasted, for the minute you have finished with the stove the lights can be put out. What could be more convenient at a picnic than one of these stoves? Set it in the wagon with the provisions, and when your destination is reached, that refreshing cup of tea or coffee is made without any trouble, and at the shortest possible notice. Not long ago we saw one used at a church social. The stove stood on a small table behind the refreshment table during the evening, on which was made all the tea and coffee required for the large company assembled. There was no disagreeable odor arising from the oil, as some might suppose. A stove of this kind is quite inexpensive, from the fact that it soon pays for itself in the saving of fuel. There are several different manufacturers as well as prices, but it is always best to buy a good article. The one we use is the Monitor, which gives great satisfaction, and we feel safe in recommending it to any of our readers who think of purchasing.

MINNIE MAY.

Answers to Inquirers.

BESSIE M.—1. The quotation beginning with the line, "Full many a gem of purest ray serene," is taken from Gray's "Elegy in a churchyard," 14th stanza. 2. When waiting at the table the maid goes to the left hand side always, with both plates and dishes. The plate or dish is held in her left hand also.

LOTTIE A. B.—That beautiful poem entitled "Curfew must not ring to night," was written by Rosa Hartwick Thorpe.

A READER.—We will insert your question under queries.

MRS. JOHN B.—The poem you desire has been forwarded us, but as it is rather lengthy, we shall be obliged to send it by mail instead of publishing it.

EDUCATIONIST.—"Darius Green and his flying machine," was written of J. T. Trowbridge, and is to be found in "Dick's Readings and Recitations, No. 8," also in "100 Choice Selec-

tions in Poetry and Prose, No. 3," published by R. Oarrett & Co.

INQUIRER.—Almost any music dealer would be able to procure a copy of the song "Tennyson's May Queen;" music by S. Glover.

HARRIE & ALBIE —1. You will find "trifle" and "Charlotte Russe" given under recipes in another column.]

2.—Flowers of any kind will grow very poorly on a hot dry hill unless kept well watered, and then most anything might do.

3.—"Books in the running brooks, sermons in stones, and good in everything," is a quotation from Shakespeare's "As you like it," act II, scene I.

4.—If you desire to know what books would be most profitable to a school girl of your age, we suggest history, beginning with that of your own country, also travels and biography, and by no means forgetting the Bible.

5. We cannot at present give patterns for darning net, but you could procure them by sending to almost any fancy store.

6.—It is quite impossible for us to state in which life, married or single, you would be most useful, not knowing for which you are best suited, but surely you can make yourself useful in whatever sphere you are; "do the duty that lies nearest thee," with all faithfulness and diligence.

We will suggest that in future, Harrie and Albie do not encroach upon our time and space by asking so many questions at once, three or four should suffice. The description of rockery in our next.

Our thanks are due J. W. Forbes and Inquirer for information concerning "Dorius Green and his flying machine; also to Jacob Moyer, Mrs. B. M. Thibl, Mrs. J. A. W. C., Gertie Heck, Edith Macdonald, Bertha Wilson and May G. Monk, for the verses, "Sleep little baby, sleep."

Queries.

A READER would be glad to receive information concerning the proper treatment for a cactus, whether dry or moist, shade or sunlight is best.

Recipes.

CARAMEL CAKE.—Whites of seven eggs, one cup of butter, two cups white sugar, two-thirds of a cup of rich milk, three cups of flour, one teaspoonful of soda, two teaspoonfuls of cream of tartar. Bake in layers. Take three cups of New Orleans sugar, one and one-half cups of sweet cream, three level tablespoonfuls of butter. Cook to the thickness of candy, and flavor with vanilla to suit the taste. When nearly cold spread on the cake.

CHARLOTTE Russe.—Make a boiled custard of a pint of milk and four eggs, season it with vanilla, or any essence you prefer, make it very sweet, and set it away to cool. Put a half an ounce of isinglass or gelatine into a gill of milk where it will become warm; when the gelatine is dissolved, pour it into a pint of rich cream and whip it to a complete froth. When the custard is cold stir it gently into the whip. Line a mould that holds a quart with thin slices of spongecake, or with sponge fingers, pour the mixture into it, and set it in a cold place.

Overworked.

Up with the birds in the early morning—
The dew drop glows like a precious gem ;
Beautiful tints in the skies are dawning,
But she's never a moment to look at them.
The men are wanting their breakfast early ;
She must not linger, she must not wait ;
For words that are sharp and looks that are
 surly
Are what the men give when the meals are
 late.

Oh, glorious colors the clouds are turning,
If she would but look over hills and trees ;
But here are the dishes, and here is the churn-
 ing—
Those things always must yield to these.
The world is filled with the wine of beauty,
If she could but pause and drink it in ;
But pleasure, she says, must wait for duty—
Neglected work is committed sin.

The day grows hot, and her hands grow weary ;
Oh, for an hour to cool her head,
Out with the birds and winds so cheery !
But she must get dinner and make her bread.
The busy men in the hay-field working,
If they saw her sitting with idle hand,
Would think her lazy, and call it shirking,
And she never could make them understand.

They do not know that the heart within her
Hungry for beauty and things sublime,
They only know that they want their dinner,
Plenty of it, and just "on time."
And after the sweeping and churning and bak-
 ing,
And dinner dishes are all put by.
She sits and sews, though her head is aching,
Till time for supper and "chores" draws
 nigh.

Her boys at school must look like others,
She says, as she patches their frocks and
 hose,
For the world is quick to censure mothers
For the least neglect of their children's
 clothes.

Her husband comes from the field of labour,
He gives no praise to his weary wife ;
She's done no more than has her neighbor ;
'Tis the lot of all in country life.

But after the strife and weary tussel
When life is done, and she lies at rest ;
The nation's brain and heart and muscle—
Her sons and daughters—shall call her blest.
And I think the sweetest joy of heaven,
The rarest bliss of eternal life,
And the fairest crown of all, will be given
Unto the way-worn farmer's wife.
—Ella Wheeler.

The Prize Method of Preserving and Canning Fruit.

BY MISS JANE W. FERGUSON, KINGSTON, ONT.

The following recipes have all been thoroughly tested, being in use for a number of years. White sugar is always used, no water, only when absolutely necessary, as given in recipes. The utmost attention is given them when in process of preparation, and they are kept in a dark cupboard in the cellar.

RHUBARB CANNED.

Peel and cut the rhubarb into pieces about one inch long, do not mash it. To every pound of fruit add one quarter pound of white sugar, mix well together, fill into common earthen mustard jars, shake well down, and when well filled place the jars in a boiler, put enough water to come up to the shoulder of the jars. Let them boil for five hours, set off until next morning, when the fruit should be sunk and the juice on the top. Now place tight-fitting new corks into the mouth of the jars and hammer well in, cover the top of the cork with powdered resin, take a hot iron—a smooth-

ing iron—and iron the rosin until all is melted, be careful to have all the cork and the edges well covered with rosin. If properly done will keep for two years.

STRAWBERRIES CANNED.

To each pound of fruit add one quarter pound of white sugar, place in a preserving kettle over a quick fire, and after it has boiled for fifteen minutes remove from the fire. Have your self-sealing jars ready standing in a large dish of very hot water, fill with the fruit and fasten down at once, after drying the top free of moisture. Before setting away in your cupboard give them all a final screw down.

STRAWBERRY JAM.

To each pound of fruit add three-fourths of a pound of white sugar, stir together over the fire until it begins to boil, then keep it well skimmed, boil until it gets thick and looks clear, which will take about two hours, pour into jars and paste strong paper over, after laying a piece of white paper upon the top.

RED CURRANT JELLY.

Pick free from stalks and leaves, fill your preserving kettle, cover with cold water and place upon the fire keeping it stirred occasionally to prevent burning. When the fruit has boiled soft and all the juice extracted, remove from the fire and strain through a colander or sieve, then through a perfectly clean jelly-bag. To every pound of juice add one pound of white sugar, boil for two hours over a clear fire, sometimes it will require a little longer if the fruit is at all acid. Try if done by taking a little on a plate, if it hardens it is done. Pour into small pots, and secure as before mentioned.

RED CURRANT JAM.

Pick fine ripe currants free from stalks and leaves, and to every pound of fruit add three-fourths of a pound of sugar, set over a fire and boil until the syrup looks clear and thick. Pour into jars and tie down.

CHERRIES PRESERVED.

Pick off stalks and take out stones, and to every pound of fruit allow one half pound of white sugar, boil until the syrup looks thick and is of a brown color. Pour into small pots.

APPLE MARMALADE.

Take nice sound russet apples, pare and core them, cut in small slices, and to every pound of fruit add one pound of sugar. Put the sugar to boil with enough water to just dissolve it in a preserving kettle, add one large lemon to every four pounds of fruit, boil all these together until the syrup gets thick, then add the apple, and boil until it looks clear. When well made this is preferred to orange marmalade.

APPLE JELLY.

Cut russet apples in quarters without peeling or coring them, cover them with water and boil until pulpy, strain through a sieve, then through a jelly-bag, and to every pound of sugar add one pound of juice, boil until quite thick, and pour into small jelly pots.

GOOSEBERRY JAM.

To each pound of gooseberries put three-quarters of a pound of white sugar, boil until the syrup begins to look clear, and of a pretty red color. Pour into pots and secure as before.

BLACK CURRANT JAM.

Pick the fruit free of stems and leaves, and

to each pound of fruit allow three-fourths of a pound of white sugar, bruise the fruit a little to dissolve the sugar, boil until it gets thick. Pour into small jars.

BLACK CURRANT JELLY.

Pick the fruit free from stems, bruise it in a preserving kettle and cover with cold water, boil until the fruit is broken, strain through a sieve, then through a jelly-bag, to every pound of fruit allow one pound of white sugar, boil until thick, and pour into small pots and tie down.

BLUE PLUMS CANNED.

To every pound of fruit allow one half pound of sugar, stir until the sugar is dissolved, then allow it to boil for half an hour, or until the fruit looks well scalded. Have your self-sealing cans ready, fill up at once and secure.

PEARS CANNED.

Take large ripe pears, peel and quarter, boil till tender in just enough water to cover them, then to every pound of fruit allow one quarter pound of white sugar, boil the syrup until rather thick, place the quarters back into the syrup, boil for a minute, and place at once in self-sealing jars.

QUINCE PRESERVES.

Pare and quarter fine ripe quinces, put the cores and parings into enough water to cover them, boil until quite soft, strain, then put in the quarters of quince and boil till tender, take them out, weigh, and for every pound of quinces add one pound of sugar, put the sugar and water together and boil until it begins to thicken, then add the quarters of quince and boil until it looks clear but does not break, take them out with a skimmer and place in pots, pour the syrup over, which should be a pretty pink color, and should form quite a firm jelly around them.

EGG PLUMS PRESERVED.

Pour boiling water over large yellow plums to remove the skins, placing them on a large dish, to every pound of fruit add one pound of sugar, make a syrup with just enough water to dissolve the sugar, and boil until it begins to thicken, put in the plums, boil until they are tender, but do not break them, remove them carefully with a skimmer back to the dish to drain, boil the syrup still longer until it gets thick again, put the plums in again, and then pour into your jelly pots. The syrup should be a pink color and form a jelly.

PEACHES CANNED.

Pour boiling water over large free-stone peaches, remove the skins and divide in half, remove the stone. To every pound of fruit add one quarter pound of white sugar, place in a preserving kettle and allow them to boil just twenty minutes. Have your self-sealing jars ready in hot water, fill up, wipe the tops dry and fasten down at once. Done in this way, peaches are delicious, and retain all their fresh flavor, and can be eaten with cream like fresh fruit.

STRAWBERRY SHORT CAKE.—With $\frac{1}{2}$ cup white sugar stir a tablespoonful butter to a cream, add one egg; stir this well; add $\frac{1}{2}$ cup sweet milk, one teaspoonful Hawford's None Such Baking Powder thoroughly mixed in one cup flour. Bake in layers; put berries between and on top with sugar sprinkled on them. In the winter I use strawberry preserve with frosting on top and find it excellent.

Screens for Fire-Places.

Our illustration represents a fire-place jardiniere, consisting of an ornamental cast-iron box, provided with hooks suitable for attaching it to slow combustion stoves. As, however, few of our readers probably possess such stoves, we mention an excellent method of forming a screen for any ordinary fire-place in summer, as described in *Gardening Illustrated*.

Procure a stout box the length of the fire-place, twelve to fifteen inches wide, or more if desirable, and eight or nine inches deep. The front and ends may be painted or varnished, according to taste. Perforate the bottom by means of an auger to afford drainage. Then procure sufficient turfy loam to fill the box, and mix with it a liberal quantity of well decomposed manure and some road sand. After draining the box by placing a large crock over each hole, and putting on these crocks one-fourth inch or so of clean gravel, put some of the rough pieces of soil in, then procure two or three good plants of the English or other kind of Ivy in pots, water them well, and when they have drained a little, turn them out and plant them in the box close to the back. In front and round the ends plant a row of young plants of Creeping Jennys, and fill the middle up with hardy Ferns, those in pots will be best. A few pieces of stone may be placed between the Ferns, if desired, to give it a less formal appearance. In each corner at the back of the box must be fastened a stout lath of the height of the fire-place, and to these should be fastened a piece of wire netting to which to train the Ivy, or a wooden lattice would answer as well.

In autumn place the box in a partly shaded position out of doors. Keep the shoots of the Ivy tied in as they grow, and stop them when they reach the top. Give plenty of water, and in winter the box would be better surrounded with ashes or sand to keep the frost from the roots.

In spring cut the Creeping Jenny down close to the soil, and by June a beautiful screen will be formed. A few cut flowers placed in among the Ferns will give a good effect. We must add that the box would be better if provided with a handle at each end, in order that it may be taken out of the room once a week, and the leaves of the Ivy and Ferns receive a thorough washing with the syringe, and the soil receive a good soaking with water.

If the plants are not to be wintered in the box, it may be used for Dutch Bulbs during winter, planting and keeping it out-doors during autumn, and, when cold weather sets in, removing it to the house before a sunny window,

My Lady's Chamber.

The human body throws off by insensible perspiration, and by the breath, every night, several ounces of waste vegetable matter, that has served its purpose, and which the system is in haste to get rid of. This waste is thrown off in a diffused form, and is hardly noticed in a single night, being mostly absorbed by the night clothes and bedding. If these are hung in a draft of air much of it passes off, and if the sun shines on them out of doors, that has still more effect in changing the harmless form which we mean by saying the sun "sweetens" things. But if the day clothing is left in a heap on the bed just as you get out of it, and the night-gown hung up or rolled up in a close closet, so that little air reaches them, the waste decomposes and gives the unpleasant beddy odor

ing at night, especially that worn next to the skin, and hanging each piece separately, where the air can reach it, and by airing the bed and bedclothes every day, giving them frequent days in the sunshine out of doors. The southern method is a good one, as told me by an old Louisiana housekeeper, who said that once a week, on Saturday, all the mattresses and bed clothes were put out in the sun, on frames for the purpose, and left all day, to be made up wholesome and sweet with the weekly fresh linen at night. This is a nice practice which all ought to adopt some sunny day each week.

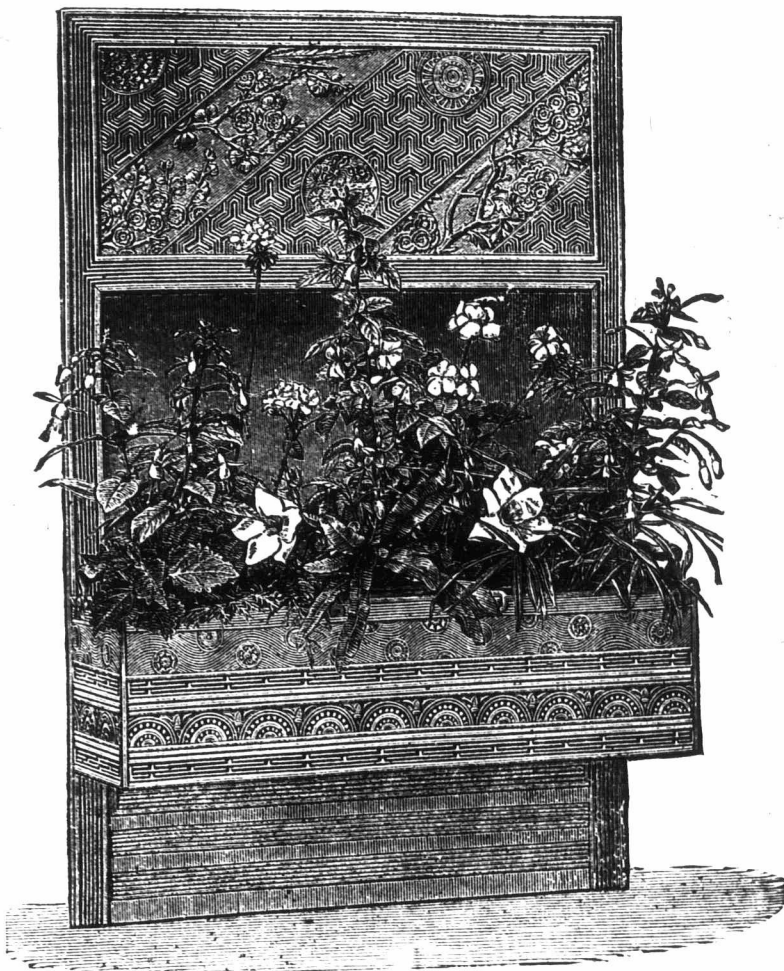
When you get up in the morning, take off the blankets and spread them on the chairs where the sun will fall on them; if possible, throw both sheets off to leave the mattress to

air, open the windows wide, and put the pillows in them to sun. Hang your night dress where the air will blow through it. If you must wear an undervest all the time have a change for night, and let me tell you, this little habit of changing the clothing next the skin frequently, has more to do with the complexion than you are aware. A girl who has an irritable skin will find a great difference in the clearness of her face if she puts on a freshly aired suit of merino every night and morning. By using the skin to these changes, and to bear the air a few minutes daily, you lessen the risk of taking colds and neuralgia all your life.

Sunshine and Sleep.

Sleepless people—and they are many in America—should court the sun. The very worst soporific is laudanum, and the very best, sunshine. Therefore, it is very plain that poor sleepers should pass as many hours as possible in the sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They shut the sunshine out of their houses and their hearts, they wear veils, they carry parasols, they do all possible to keep off the subtlest and yet most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change this, and so get color and roses in their pale cheeks, strength in their weak backs, and courage in their timid souls? The women of America are pale and delicate: they may be blooming and strong; and the sunlight will be a potent influence in this transformation.

Women have a great respect for old age. Watch a young lady seated in a street-car between a young gentleman and an elderly one, and see how determined she is not to incommodate the latter by crowding against him.



SCREEN FOR A FIRE PLACE.

complained of in sleeping rooms. Well may they have a disagreeable smell, for day by day a substance has been allowed to gather in the room, and penetrate everything there, which, if collected in mass, so as to be seen and recognized, would be shocking and offensive to the last degree.

This waste which saturates clothes and bedding is absorbed again into your body, which is more sensitive to such influences when asleep than awake. You breathe it, your skin absorbs it by those myriad mysterious vessels of which it is full as a sponge, and the blood receives this waste again, to the injury of your health and complexion. You must make a habit to get rid of this, taking off all the cloth-

Uncle Tom's Department.

MY DEAR NEPHEWS AND NEICES.—Such a great number of interesting letters this month from all my dear children makes me feel unusually happy, it is very good of you to write me such pleasing and cheerful letters, considering your school examinations were fast approaching too, when you really require all the time and energy you can muster up, as each examination seems so much harder to pass than the last. I was just reading a story of a generous boy which I think will please you, and will give it.

The life of the Rev. Frederick Denison Maurice illustrated Milton's familiar lines,

"The childhood shows the man,
As morning shows the day."

In his boyhood he was honest and truth-telling, gentle and affectionate. He was never known to utter an unkind word to his companions, or to do them an ungenerous action. On the contrary, he never seemed so delighted as when he had an opportunity to do them a favor, even when it required him to deny himself. Generosity seemed as natural to him as selfishness was to other children.

When he was five years old, he came, one day, into the family-room with a biscuit in one hand and a flower in the other. A gentleman, who happened to be present, whispered to Frederick's mother, "Children always give up what they least care for. Now we shall see which he likes best."

Then turning to the child, he said,—
"Frederick, which will you give me, the flower or the biscuit?"

"Choose which you like," answered the boy, holding out both hands.

One summer evening, while he and two other boys were rambling in the country, an angry bull forced them to take refuge upon an embankment in a large field. They were safe there, but the bull by pacing round kept them prisoners, until the approach of night warned them that their parents would grow uneasy at their long absence.

The boys decided that one of them should make the attempt to procure assistance, and drawing lots was spoken of.

"No," said Frederick. "I am the oldest; it is my duty to go."

Quietly he descended the embankment, whilst the two boys tried to divert the bull's attention. But the bull followed Frederick, who retired, facing the animal, slowing bowing to it with his hat at intervals—according to a theory which he had on managing angry beasts.

When he had approached so near the gate that he could reach it, before the bull, by a smart run, he made the final rush and got through, thereby increasing the animal's rage. In a few minutes he returned with a man who drove away the bull and released the two boys.

A man who would risk his life to save a friend from danger might refuse to accept mortification for himself in order to save his friend's feelings. But young Maurice was equal even to this self-denial.

He and a friend, while students at the university, were walking over the Isle of Wight. At the end of a long day's walk, they met a

party of fashionable friends who insisted that the students should call upon them at their house and pass the evening.

The two friends retired to the inn to furbish up their travel-stained garments. Upon looking for clean stockings—in those days short breeches and long stockings were worn—they found only one pair remaining in the joint wardrobe.

These were silk ones, and belonged to Maurice. With his characteristic generosity, he urged his friend to wear them, who would not allow the self-denial.

The dispute ended in a compromise. Each put one stocking upon his right leg. With one clean stocking on, both shuffled into their friend's parlor, trying to conceal the disreputable leg and to put the best foot foremost. In after years the two had many a hearty laugh over the shifts they resorted to, to keep the unclean stocking out of sight.—UNCLE TOM.

Puzzles.

1—ILLUSTRATED REBUS.



2—GEOGRAPHICAL ENIGMA.

It being (Island in Oceania) Sunday, my brother (a bay in N. America) and sister (a river in Asia) and I went over to spend the day with my grandma (a cape in Australia). We started from home and only had gone a short distance when we saw a (lake in North America) cross the road before us. He was (a sea in Asia) all but his feet, and they were (an island in the English Channel). We ran a (a cape in N. America) to see who would get there first to tell the story. When we reached the house grandma told us that the (lake in N. America) had been shot (a sea in continent of Asia) about five minutes before. We bid (cape in N. America) to fright, and spent a pleasant day admiring the flowers and listening to the (island in Africa). ADA HAGER.

3—HIDDEN PRECIOUS STONES.

Edgar, Nettie wishes to see you immediately. Drop all the apples in my hat. Is Mag at Essex, now? Give your sister the pear, Laura. He will ride on Ned; I am on Dick already. Those are tip-top azaleas. Let me rub your head with camphor. EDITH M. EARLE.

4—PUZZLE.

Form of Puzzle.
1st, is a swift animal. O O O
2nd, is a troublesome animal. O O O
3rd, is over and above. O O
4th, is a kind of fish. O O
5th, is a consonant. O

My whole is one of the divisions of North America. CHRISTENA HADCOCK.

5—CHARADE.

My first is a false pretence; my second is a stone; my whole is a plant, the emblem of its home. R. J. RISK.

6—ANAGRAM.

Ne'e tghhuo snoces nailgantm anlgces.
Verop mhi tsorpeo fo shi nalc,
'She teh blone how vacadens.
Mdferoe dan eht eascu fo nam.

ADA ARMAND.

7—POETS ENIGMATICALLY EXPRESSED.

1. A color and a boy's name.
2. To move and something used by fishermen.
3. A pronoun and the human race.
4. A word used to guide horses and a tree.

GEO. VAN BLARICORN.

8—TRANSPOSITION.

Gouthh oto tof yb nisshaf 'o treecaus,
Rokw dan kesrwro amy eb madelb,
Mmeecero eedn ont dhei sit teeuarsf,
Dtysniur si otn hmsdaae. JAS. COWAN.

9—DROP LETTER PUZZLE.

F-i-c-a-i-y-e-h-u-y-u-s-a-d
e-h-c-n-t-n-c-u-h-y-r-a-t.

MAGGIE F. ELLIOTT.

10—HIDDEN TREES.

- (a) She was told to rip each seam, but she did not do it.
- (b) I don't think the boys that went for the tape are back yet.
- (c) Willie fell as he was going down the hill, and cut his face.
- (d) Say, Tom, I don't believe there is any sap in either of those trees.

MAGGIE F. ELLIOTT.

11—HIDDEN SQUARE WORD.

1. He arrived at Omaha in due time.
2. There is not a person present who knows it.
3. Stop a little before you proceed.
4. Do you like smelts? HENRY REEVE.

12—NUMERICAL PUZZLE.

My 5, 4, 2, 3 means to play roughly.
My 5, 6, 8 means the edge.
My 8, 4, 5, 1 means a greater quantity.
My 5, 7, 2 means a place of merchandise. B. M. RAMSAY.

Answers to June Puzzles.

- 1.—Of two evils choose neither.
- 2.—Hamilton.
- 3.—Oh, while you feel 'tis hard to toil
And labor all day through,
Remember it is harder still
To have no work to do.
4—W A R P
A R E A
R E I N
P A N T
5—J
TOM
MOUND
JOURNEY
MONEY
NED
Y
6—Shannon.
- 7.—The ADVOCATE is a splendid journal,
Is noted for its knowledge and fun,
So I advise all people to try it,
It will please you, both old folks and young.
- 8.—Home is that paradise below
Of sunshine and of flowers,
Where hallowed joys perennial flow
By calm sequestered bowers.
- 9—Kidderminster.
- 10—Blink, link, ink, in.

Names of Those Who Have Sent Correct Answers to June Puzzles.

Bella M. Perry, Carrie Christner, Sarah E. Miller, Hattie Kirkley, Minnie E. Watson, Sarah E. Miller, J. J. Smyth, Laura S. Black, Annie Kelly, Will Thirlwall, Phillip Harding, Georgina Smith, Lottie A. Boss, Ellen D. Tupper, Fred. D. Boss, Ann J. Phoenix, Edith M. Carle, Isabella McLeod, W. M. Head, Sarah

M. Brett, Arthur Eddy, Jas. Cowan, Isabella J. Heron, Ada Jackson, Ada Manning, Bessie Allan, R. J. Risk, H. E. Moblo, Katie Miller, Mary Marshall, Ada Armand, May G. Monk, Maggie E. Stenhouse, Wm. S. Howell, Wm. Benjamin Milliken, Minnie E. Weldon, Annie B. Craig, Robt. Wilson, Agnes M. Flood, Christina Hadcock, Wm. Carney, Henry W. B. Martin, Lucy Docker, Maggie F. Elliott, Neil McEwen, Henry Reeve, Peter Lamb, Mary McArthur, Geo. Van Blaricorn, Annie B. S. Scott, Becca Lowry, Wm. B. Bell, Emma Millar, John H. Ross, Sarah Wessel, Robert Kerr, Mary McElroy, Jas. Watson, Thos. Armstrong, Louisa Berg, C. Gertie Heck, Bertha M. Ramsay, John T. Shipley, Bertha March, John Pardo, Jacob Moyer, Ida Shipley, W. L. Scissons, Byron G. Bowerman, Chas. Herbert Foster, Alice Dowler, Mabel Robson, P. George Boulton, Aggie Willson, Esther Louisa Ryan, Belle Richardson, Harry A. Woodworth, Amelia L. Sumner, E. Daniels, H. F. Wilmot, Ada Hagar, Mark Dearing, Jas. Paterson, Archie Shipley, Gertie McBride, Elmon M. Moyer, Annie C. Robertson, Eva C. Kelly, Jessie Fox, Mary Morrison, Amelia E. Walker, A. J. Taylor, Amelia Warren, Lena B. Scott, Nettie Ryckman, J. Wm. Forbes, Sarah H. Pickett.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., July 1, 1884.

The past month has been most propitious for the growing crops. Fine, warm weather with some fine showers. The frosts in the first week did some damage, it is true, but not to the extent many had feared.

WHEAT.

This commodity has ruled very quiet for some months, and the price has kept low, with some very sharp declines. The losses sustained by speculators and holders of this article has been something tremendous. Many are of the opinion we shall see a still further decline before the 1st of October.

The condition of the growing wheat crop has improved very much the past month, and with good weather for the next six weeks we may expect an average crop of fall wheat. The area of spring wheat sown in some sections the past spring was very much larger than for years previous, and should the season prove favorable, the returns from this crop will go a long way towards making up any deficiency in the yield of the winter wheat harvest.

There are some complaints by correspondents from some parts of the States, chiefly Illinois and Missouri, that the wheat fields in many parts of these States are "turning to cheat." To what extent this will effect the final outcome of the crop will be difficult to estimate.

WOOL.

Business in this line remains unsatisfactory, dull and depressed. Parties in the trade say that mill men seem less disposed than ever to buy, and are working along in a very moderate way. The fact is that manufacturers seem to have a pretty heavy stock of woolen goods, and are not disposed to stock up with the raw material till they see some chance of working off their stocks of manufactured goods.

PORK.

This article is just now attracting a good deal of attention in the States. Phil. Armow with one or two others are making it hot for the bears. To give our readers some idea of this corner we may mention that at current sales for hogs in Chicago mess pork can be

made for \$15 per barrel, and the price there now is \$20. Of course, this is only temporary, and may explode at any time. Should the Chicago Board of Trade pass a rule that mess pork can be made in summer as well as winter, the present "corner" would soon be shattered.

CATTLE.

Private cables from Liverpool report the market steady at 7½d., while dressed beef has advanced to 65s. 8d. The market in Montreal is quiet and unchanged, a moderate business being done at 5½c. to 6½c. per lb. live weight.

(Continued on page 216.)

NEW ADVERTISEMENTS.

ADVERTISING RATES.

The regular rate for ordinary advertisements is 25c. per line, or \$3 per inch, nonpariel, and special contracts for definite time and space made on application.

Advertisements unaccompanied by specific instruction inserted until ordered out, and charged at regular rates.

The FARMER'S ADVOCATE is the unrivalled advertising medium to reach the farmers of Canada, exceeding in circulation the combined issues of all the other agricultural publications in the Dominion. Send for advertising circular and an estimate.

SPECIAL NOTICE.

THE FARMER'S ADVOCATE refuses hundreds of dollars offered for advertisements suspected of being of a swindling character. Nevertheless we cannot undertake to relieve our readers from the need of exercising common prudence on their own behalf. They must judge for themselves whether the goods advertised can in the nature of things be furnished for the price asked. They will find it a good rule to be careful about extraordinary bargains, and they can always find safety in doubtful cases by paying for goods only upon their delivery.

PEDIGREE HEREFORDS!

MESSRS. ROGERS & HAMAR, the pedigree Hereford salesmen, have now on hand for sale by private treaty a herd of

50 FASHIONABLE PEDIGREE HEREFORDS

(all entered in the E. H. H. Book), at the head of which stands a son of Lord Wilton (4740) and a son of Bredwardine (5233), both of which are for sale.

Rogers & Hamar have also for sale

70 HEAD OF PEDIGREE HEREFORDS

chiefly yearling and two-year-old heifers, of the most fashionable strains, and entered in the E. H. H. Book.

For particulars communicate with

ROGERS & HAMAR,
The Pedigree Hereford Salesmen,
HEREFORD, ENGLAND.

Compilers of the Record and Register of Transactions in Hereford Cattle. 223-a

Excelsior Fertilizer

Having established a factory for the above Fertilizer in the City of London, Ont., I am now prepared to fill orders and to ship it to all parts of the Dominion. After many years experience in the manufacture of this Fertilizer in England, and with a practical knowledge in the mining of apatite and the quality of the same, I am ready now to fill orders with such a quality of fertilizer that will give satisfaction to those that use it. I have the most satisfactory testimonials from leading farmers and gentlemen who have tried it. It is packed in 50lb. bags and in barrels. I am prepared to ship in large quantities.

For particulars address

THOS. ASPDEN & SON,
LONDON, ONT.

P.S.—Now is the time to use it on root crops, lawns and flower gardens to show the best results. It is death to insects and life to plants.

To Importers of Sheep and Pigs:

I will leave for England shortly, and will attend the Royal and will purchase and bring out Sheep or Pigs for any one wishing to import. I brought out a number of Sheep and Pigs last season, and know where to get the best. Write for terms.

JAS. GLENNIE,
Guelph, Ont.

222-b

GRAND DOMINION
—AND—
39TH PROVINCIAL EXHIBITION.
Under the auspices of the
AGRICULTURAL AND ARTS ASSOCIATION OF ONTARIO,
—TO BE HELD AT—
OTTAWA
—ON THE—
22nd to 27th Sept., 1884.

23,000 Dollars in Premiums and Dominion Medals.

Entries must be made with the Secretary, at Toronto, on or before the undermentioned dates, viz:—
Horses, Cattle, Sheep, Swine, Poultry, Agricultural Implements, on or before August 23rd.
Grain, Field Roots and other Farm Products, Machinery and Manufactures generally, on or before August 30th.
Horticultural Products, Ladies' Work, Fine Arts, etc., on or before September 6th.
Prize lists and blank forms for making the entries upon can be obtained of the Secretaries of all Agricultural and Horticultural Societies and Mechanics' Institutes throughout the Province and from the Secretary

HENRY WADE,
Agricultural Hall, Toronto.

223 b

NORTHERN
PACIFIC R. R.
LANDS in Minnesota, North Dakota, Montana, Idaho, Washington and Oregon.

The Northern Pacific country is the newest region open for settlement, BUT THE RICHEST IN NATURAL RESOURCES. Its exceptionally fertile soil, well watered surface, fine wheat and farming lands, best of cattle grounds, large bodies of timber, rich mining districts, healthful climate, great navigable waters, and grand commercial opportunities are the chief attractions which invite a large population.
NOTE 10,818,433 acres or MORE THAN HALF of all the Public Lands disposed of in 1883 were in the Northern Pacific country. Send for maps and publications describing the railroad lands and the country. They are sent FREE.
Address **CHAS. B. LAMBORN,**
Land Com'r, St. Paul, Minn.

GARDNER'S \$2 BABY JUMPER.

CHAS. T. GARDNER, Napanee, Ont.,
Sole Proprietor and Manufacturer for the United States and Canada.



The Jumper is designed for babies from the time they can sit alone until they are two years old. Send \$2 and a Jumper will be delivered to the nearest express office. Carriage free any where in Canada except Manitoba leading to the coast. A liberal reward will be given to any person who will furnish the name of the inventor of any party in the U. S. or Canada infringing on my patent, and

any infringement will be prosecuted to the fullest extent of the law. All are hereby warned against purchasing a similar device without my name on it.

CHAS. T. GARDNER.

222-y

THE GREAT Industrial Fair and Semi-Centennial Exposition

—OF—
Live Stock, Poultry, Dairy, Agricultural and Horticultural Products, Implements and Manufactures of all kinds.

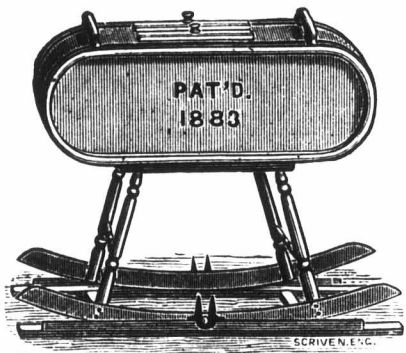
TORONTO, SEPTEMBER 10TH TO 20TH, 1884.
The Largest Prize List in the Dominion.

The programme of special features and novelties will be the best yet presented by the Association. Prize Lists and Entry Forms can be obtained from the Secretaries of all Agricultural Societies and Mechanics' Institutes, or they will be sent anywhere on application by post-card to the Secretary at Toronto.

Cheap Rates and Excursions on all Railways The Best Time to Visit the City of Toronto. WAIT FOR IT.

J. J. WITHROW, President. 222 c
H. J. HILL, Manager and Secretary. Toronto.

Parmenter's Rockaway Churn!



TAKES THE LEAD WHEREVER IT IS KNOWN.

Milton, Ont., June 9th, 1884.
Mr. W. E. Parmenter, Toronto, Ont.:
Dear Sir,—Your letter received. Am doing very well with the churns. Have sold quite a number of them, and they take well. Everyone that buys them gives them a great recommend. Out of the first sixteen I gave out on trial I only got one back. I have had three other churns to compete with, and I think by another year there will be no other churn sold around here but the Rockaway. Yours respectfully,
A. H. DOW.

These Churns are now made from Indiana whitewood, procured at great expense, and is perfectly tasteless. Other improvements have been made, and no expense has been spared in their construction to make them perfect and durable in every way, which renders an advance in price necessary, but will be found on comparison of cost and durability the cheapest, most complete and easiest working churn in the market.

Prices—No. 1, capacity 4 gallons..... \$ 9.00
No. 2, capacity 7 gallons..... 10.00
No. 3, capacity 10 gallons..... 11.00

A liberal discount to the trade. Where they are not kept for sale you can order one through any hardware or general merchant.

H. A. NELSON & SON,
Sole Wholesale Agents,
223-41 TORONTO and MONTREAL, Canada.

Insects Injurious to Fruits.

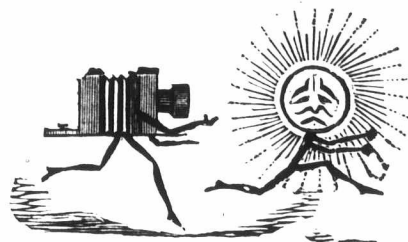
By WILLIAM SAUNDERS, F.R.S.C.,

Editor of the "Canadian Entomologist," President of the Fruit Growers' Association of Ontario, etc. Illustrated with 440 engravings on wood.

This book will be found extremely useful to all who are engaged in fruit culture, since it treats in a concise and clear manner of all the insects known to be injurious to fruit on this continent.

Mailed, post-paid, on receipt of \$3 Orders solicited.

Address **THE FARMER'S ADVOCATE,**
223-y London, Ont.



J. DIXON is Your Photographer.

His work is equal to any in the City, and prices far below all others. Cabinets, \$2.50 per doz. Note the address,

J. DIXON.

221-f 201 and 203 Yonge St., TORONTO.

Gurney & Ware's Standard Scales



Have taken first Prize at 22 Provincial Exhibitions; first Prize at Provincial Exhibition, London, 1881.

Prizes taken in England and Provinces of Quebec and Nova Scotia.

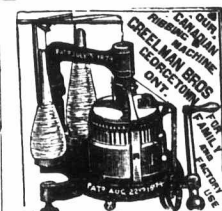
Hay, Cattle, Coal, Stock, Mill, Grain, Dairy, Railroad & Grocer Scales.

None genuine without name on. All makes of scales promptly repaired.

Lend for catalogue to 201-1 eom

GURNEY & WARE,
Hamilton, Ont.

Our FAMILY KNITTING MACHINE



Under Shirts, Drawers, Scarfs, Children's Wear, Hosiery, Caps, Gloves, Mits, &c. All sizes can be made on

Our Family Machine.

Our Book of Instructions will teach you all. It is so simple six undershirts can be made in one day, giving a profit of 75 cents each. Blind girls can knit and finish one dozen pairs of socks per day, and \$2, \$3 and \$4 per day can be easily made on our "Great Family Canadian Ribbing Machine."

Send for descriptive Catalogue and Testimonials from the blind.

CREELMAN BROS.,
Georgetown, Ont.

Commercial.

(Continued from page 215.)

Last year at this date shipping cattle sold at 6½c to 7½c.

The following were the exports of live stock from Montreal during the week ending June 21, with comparisons:—

Per	To	Cattle.	Sheep.
Nestorian.....	Glasgow..	399	.....
Fernwood.....	London...	126	149
Lake Champlain..	Liverpool..	284	.....
Concordia.....	Glasgow..	425	120
Montreal.....	Liverpool..	304	.....
Helvetia.....	Antwerp..	250	.....
Total.....		1,778	269
Last week.....		1,518	257
Cor. week 1883.....		1,464	70
Cor. week 1882.....		449	314
Total to date.....		14,060	1,416
To same date 1883.....		15,400	1,289
To same date 1882.....		11,931	3,896

CHEESE

Has moved off well so far this season, and factorymen have no cause to complain. The first half of June are now pretty well sold, and many of the first week moved off. The make is heavy, and the shipments so far are considerably in advance of last year. The season has been very favorable for pastures, and there is every prospect of a heavy make. The weather has been very warm the greater part of the last half of last month, which will hasten the ripening and make them ready to move earlier than they otherwise would do.

BUTTER.

A good deal of dissatisfaction continues to be manifested over the condition of the market. The feeling is slow all round, with business entirely confined to local trade.

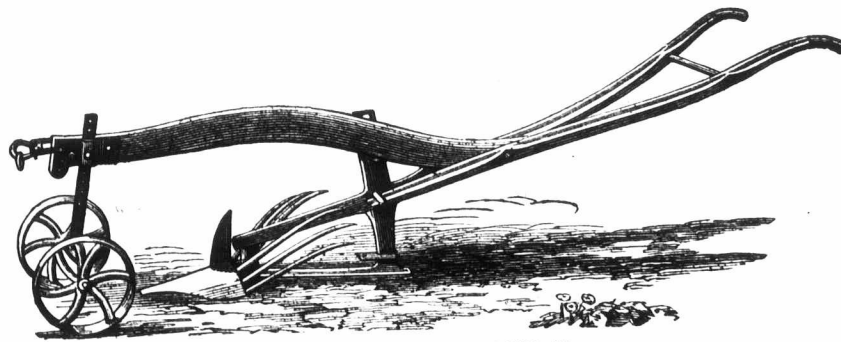
The Waterloo, Q., Advertiser says:—"The market for butter continues to sag and as values recede to a lower basis dairymen exhibit less and less disposition to sell. The position in this section seems to be that farmers who are not obliged to realize sharply are generally in favor of holding for an upward turn in prices. A few selected parcels to fill special order brought 18c., but the bulk of first-class goods passed from first hands at 17c., and from that down to 16c. as to quality. Inferior to medium grades are quoted at 14c. to 15c., but buyers are not anxious to touch them at any figure. Reports from the surrounding counties do not differ materially, being dull and weak, with farmers holding back and buyers not eager to operate above their limits."

PRICES AT FARMERS' WAGONS.

Wheat, fall, per bushel.....	\$1 00 to \$1 07
Wheat, spring, do.....	1 09 1 10
Wheat, goose, do.....	0 75 0 83
Barley, do.....	0 55 0 60
Oats, do.....	0 43 0 44
Peas, do.....	0 73 0 77
Rye, do.....	0 90 0 90
Dressed hogs, per 100 lbs.....	8 25 8 50
Chickens, per pair.....	0 30 60
Ducks, do.....	0 70 1 00
Butter, pound rolls.....	0 16 0 18
Eggs, fresh, per dozen.....	0 16 0 13
Potatoes, per bag.....	0 70 0 75
Apples, per bbl.....	3 75 4 50
Onions, green, per doz.....	0 15 25
Cabbage, per dozen.....	0 75 1 25
Peas, per bag.....	1 25 0 00
Turnips, per bag.....	0 00 0 00
Carrots, do.....	0 00 0 00
Beets, per doz.....	0 50 0 00
Parsnips, per bag.....	0 00 0 00
Rhubarb, per dozen.....	0 25 0 00
Radishes, per dozen.....	0 25 0 00
Hay, per ton.....	7 00 15 00
Straw, do.....	5 50 7 50

(See Notices, page 218.)

WALMSLEY'S PATENT POTATO DIGGER!



MANUFACTURED AND IMPROVED BY

R. DENNIS, London, Ontario.

Send for descriptive Catalogue and Testimonials from the blind. For particulars address above.

SCREENS

Ready-framed to Fit any sized

DOOR or WINDOW

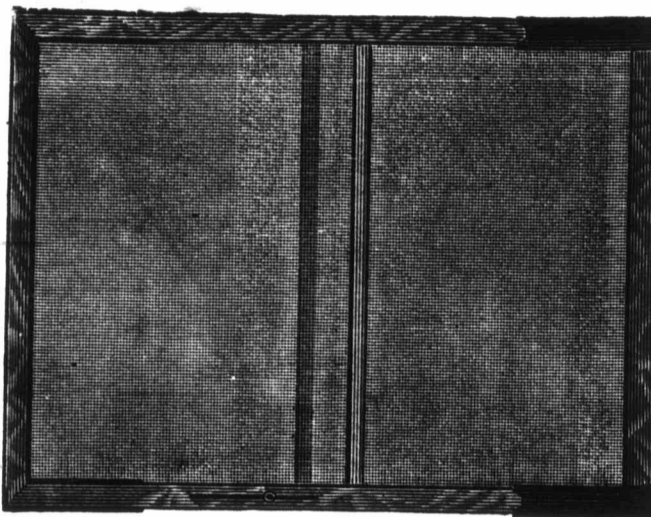
No Carpenter Required to Hang Them.

Delivered at Nearest Railroad Station.

Circulars Free.

OTTER SWEEPER CO.

OTTERVILLE, ONT.



WATER---Clear, Cold and Pure.



The Radial Centre secures water better than any other point made, as it gives the whole surface under the gauze. Circulars free.

223-a

F. G. BULLOCK, Otterville, Ont.

ZIMMERMAN FRUIT AND VEGETABLE EVAPORATOR

Made of Galvanized Iron. FIVE SIZES 15,000 SOLD. Economical, Durable and Fire Proof. Will pay for itself in 30 days use, out of sale of its own products. FREE! Our Illustrated Catalogue and Treatise. Address, ZIMMERMAN MFG CO., Cincinnati, O. or Burlington, Iowa.

223-b

ALL KINDS OF **Small Fruits**

New Strawberries, New Blackberries,
New Raspberries, New Currants & Grapes.

GOOD PLANTS: FAIR PRICES!

(Latest Descriptions, with hints on successful planting and cultivation, given in my NEW ILLUSTRATED CATALOGUE, which will be Sent Free to all interested in Small Fruits, who apply.—Post Card will do.)

T. C. ROBINSON,
Drawer 455, OWEN SOUND, ONT.

(Please mention this paper.)

951 FIRE-PROOF CHAMPION ENGINES

BUILT SINCE 1877.



AS A TRACTION ENGINE

The Champion is Unequaled.

D. T. BEDFORD writes from Raglan, 27th Dec., 1883:—"I have had time to test the traction engine you sent me. I have run it over some very bad hills, where it would give two horses all they wanted to take a portable engine. I started from the station, attaching a wagon with 2200 lbs. of coal and two barrels of water. I had no bother to draw it up any of the hills between Oshawa and Raglan. The steering rig is complete; can run over narrow and slippery roads, in fact for a bad place I would rather run by hand than with horses. I can stop and back up (if wanted) going down a steep hill; can run through a foot of snow, and have done it up steep hills. I have moved a mile with a boiler full of water and fire-box of wood and had plenty, and this was over bad roads. I can run my big Climax Separator from daylight till dark on ten barrels of water, and a great deal less wood than I ever could with the 12 h. p. The 16 h. p. is just the thing to thresh with, they were feeding or not. I might write two or three sheets of my exploits with the traction, but have not time. Everybody is pleased with it, and I am more than pleased."

WATEROUS ENGINE WORKS CO., BRANTFORD, CANADA.

Full supply of Engines, repairs and settlers' outfits kept by our branch Foundry and Machine Shop in Winnipeg.

See Our Straw Burner for 1884. It is a pronounced success.

WATEROUS ENGINE WORKS Co., BRANTFORD, CANADA

Notices.

The Annual Fat Stock show will be held at Chicago, November 11 to 20, 1884. Entries close November 1.

The Quebec Provincial Exhibition will be held in Montreal Aug. 29—Sept. 6. Georges Leclere, Secretary

The annual Union Flower Show of the Toronto Electoral District Society, and Toronto Horticultural Society, will be held in the Horticultural Gardens, Toronto, July 15th and 16th, 1884. Competition open to all.

We have received from Prof. W. J. Beal, of Lansing, Mich., Secretary of the American Pomological Society, the proceedings of the 19th session of the society. The report is published by the society and contains much valuable information.

PARMENTER'S ROCKAWAY CHURN.—The attention of our readers is directed to the advertisement of Parmenter's Rockaway Churn in the usual column. This churn has been well recommended where tried, and all in want of a new churn should send for their circular before buying.

Artificial fertilizers are of far more value than many farmers are aware of. Some have procured fertilizers that have not the proper component parts in them to be of much value; others may not have understood how and when to apply them; one trial and a failure by one person in a locality is about enough to damp the energies of a township, and once condemned it is difficult to restore confidence. We were recently through the works of Thos. Aspiden & Son, in this city, and we saw the ingredients used; we looked to the surrounding to see what was about; we conversed with gentlemen that have used Aspiden's fertilizers, and we have just come to recommend you to procure a bag or a barrel. The small bags contain 50 lbs., and give it a trial. Put a little on a spot of grass, a little on your corn, turnips, vegetables or flower plants, and we believe you will find such results as will astonish you. If you wish to take prizes at the exhibitions this fall your chances will be very materially increased by a little artificial fertilization. Send a letter or postal card directed to this firm, ask their terms and circular in regard to particulars. We do not think you will regret it.

This season we advertised in about half a dozen papers, and we found the ADVOCATE a better medium than all the other papers put together. In answer to our last advertisement in the ADVOCATE about our fruits, we received applications from all the provinces in the Dominion, from the N. W. T.; and from the United States down south as far as Texas.

W. W. HILBORN & Co.
ARKONA, Ont.
See Stock Notes, page 220.

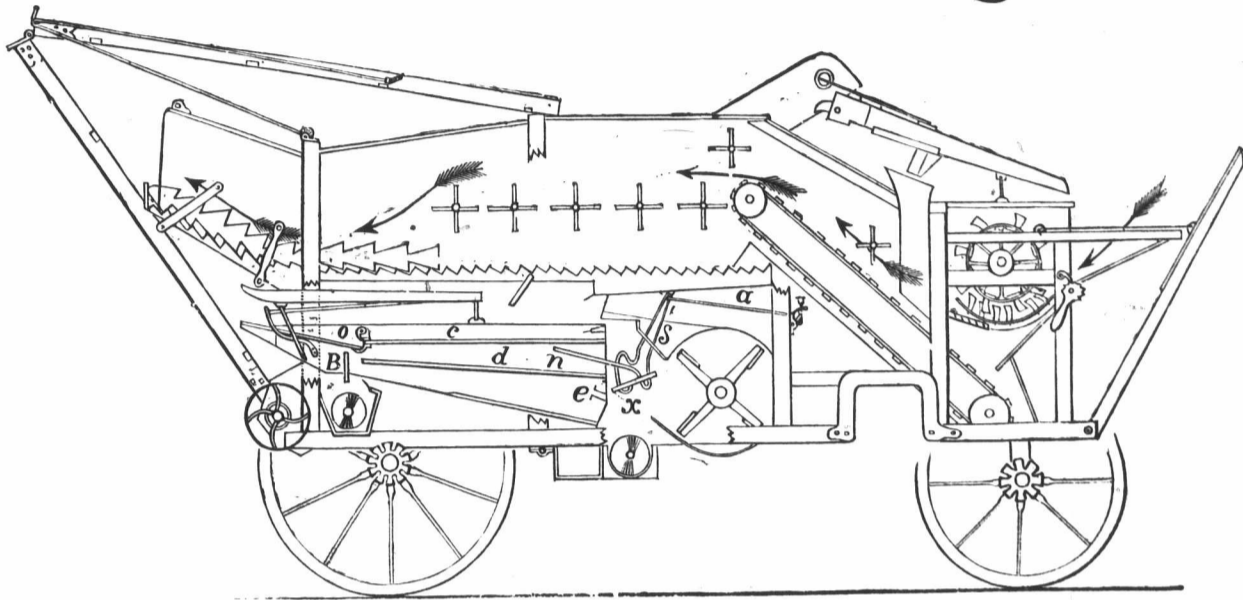
DEDERICK'S HAY PRESSES.



we are everywhere on trial to operate against all other presses. the customer keeping the one that suits best.

Manufactory at 90 College Street, Montreal, P. Q.
Address for circular P. K. DEDERICK & CO., Albany, N.Y.
221-y

SECTIONAL VIEW OF
Miller's "New Model" Vibrating Thresher



Manufactured by the Joseph Hall Manufacturing Company, Oshawa, Ontario.

THE MOST PERFECT THRESHER, THE MOST PERFECT SEPARATOR, THE MOST PERFECT CLEANER EVER OFFERED TO THE PUBLIC. THE ONLY TRUE GRAIN SAVER

JOHN DRYDEN, M. P. P., on the "NEW MODEL." (From the "Ontario Reformer," December 21st, 1883.)

Our readers are, probably, all aware that John Dryden, M. P. P., President of the Canadian Shorthorn Breeders' Association, occupies one of the finest farms in the Dominion of Canada, and is one of the best farmers. He cultivates something over five hundred acres of land, and there is scarcely an acre but what is in a high state of cultivation, and the whole farm is free from all weeds or plants which are injurious to crops. Not only does he own one of the finest and best tilled farms in the country, but his stock throughout, whether horses, cattle, or sheep, are of the very best breeds, and all of them fine animals. In every department Mr. Dryden looks out for the best, whether it is in the line of stock, machinery or seed grains. He and his neighbor, Mr. Samuel Holman, purchased for their own use, this year, a New Model Vibrating Threshing machine of the Hall Company, and Mr. Dryden's opinion we give below. Every one who is acquainted with him knows that he would not put his name to any statement which is not correct in every particular; therefore his opinion of the New Model is of great value to those who desire to purchase a threshing machine:

Brooklin, Ontario County, Dec. 13, 1883.

The Joseph Hall Manufacturing Company, Oshawa,
 We are highly delighted with the New Model Vibrator purchased from you this season. It runs smooth and easy; threshes perfectly; separates thoroughly; and the fanning mill does its work so completely that it cannot be excelled. It is just the machine for the farmer to buy because it is easy to control. It is comparatively free from dust, there can be no waste of grain, and it is bound to do good work under every circumstance. We heartily congratulate you on the introduction of so complete a separator, a great boon both to threshers and farmers.
 Very truly yours,
 JOHN DRYDEN, M. P. P.
 SAMUEL HOLMAN.

New CHAMPION HORSE HOE

(PATENTED.)

It Hoes, Cultivates, Cuts from the Drills, Hills
 Up all Root Crops, Corn, Beans, Strawberries,
 Onions, &c., &c.

The Most Complete Implement for these Purposes Manufactured.

ONE-HORSE PLOWS, JOINTER PLOWS

Chilled or Steeled.

AN FIRST PRIZE Im-
 plements.

Send for Catalogue, or
 ask your dealer to
 get one for you.

ADDRESS—

B. BELL & SON, ST. GEORGE, ONT., CANADA.

222-b



will be held at
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J. J. Beal, of
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RN & Co.

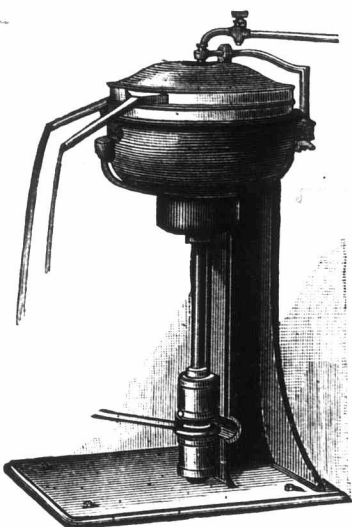
ASSES.
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al, P. O.
 bany, N.Y.

DeLAVAL CREAM SEPARATOR

The Greatest Dairy Invention of the Age!

Awarded Thirty-two Gold Medals!



By this system the cream can be separated from the milk immediately after it comes from the cow, consequently the use of cream and milk twenty-four to thirty-six hours earlier than by any other process.

No ice or expensive buildings necessary.

The construction is simple and the apparatus easily cleansed.

No heavy foundations required.

With less than one-horse power it will skim the cream from 750 to 800 pounds of milk per hour.

The DeLaval Cream Separator is now in use in the best dairies and creameries in Europe and the United States.

For further particulars please address

FRANK WILSON

P. O. Box 1824, MONTREAL, CANADA.

General Manager DeLaval Cream Separator Co.'y of Canada. 220-c

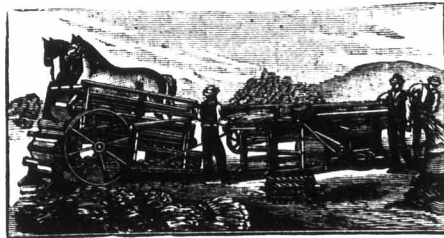
Sumyside Stock Farm, Stanstead, P. Q., 17th June, 1884.

Mr. Frank Wilson, Manager DeLaval Cream Separator Company of Canada.

Dear Sir,—The Separator is running very nicely, separating the cream from the milk as thoroughly as ever was done by cold water setting, and saving the labor of cleaning a large number of cans. It is run part of the time by a boy of fifteen years old, and he has no trouble in managing it. The cream is always sweet and clean.

Yours truly,

J. A. PIERCE.



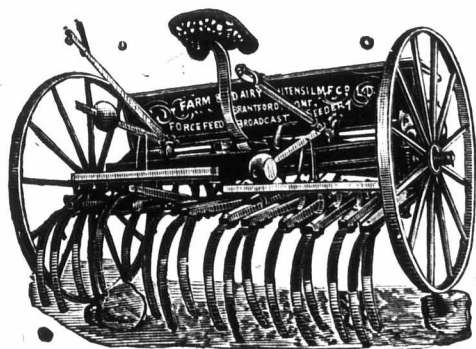
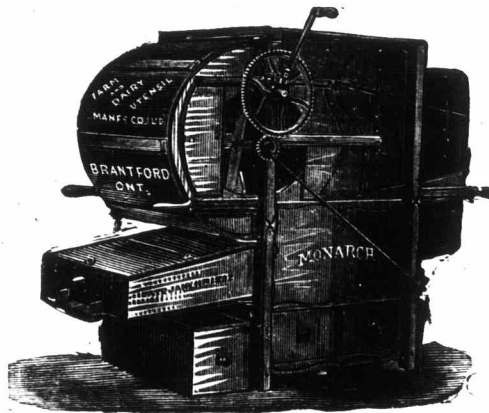
OLDS' PATENT 1, 2 AND 3 HORSE-POWERS AND SEPARATORS

The leading Threshing Machine in the Dominion. Will do almost double the work of the old style mills. Send for Pamphlet to **B. W. OLDS & CO., 174 Mullins St., Point St. Charles, Montreal.** Or to **LARMONTH & SONS, General Agents, 33 College St., Montreal.** Or to **W. S. CASSON, General Agents for Frost & Wood, Truro, Nova Scotia.** Our Powers, formerly made at St. Albans, are used to operate the Laval Cream Separator. 222-f

The "MONARCH" Fanning Mill.

In Capacity, Quality of Work, Adjustability and Finish, unequalled by any.
In Range, Variety of Work, Mechanical Principle and Construction, superior to all others.
The only Mill that gives perfectly clean seed grain.
The only Grading Mill made.

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Farm & Dairy Utensil Mfg. Co., Limited
Brantford, Ont.



Manufacturers of
Improved "Wide-Awake"
Separator, Weller's Independent Spring Tooth Sulky Harrow, with or without Broad Cast, and Grass Seeder; Bickford's Non-Freezing, Force, Lift Tank, and Suction Pumps, Drive Pumps. 214-y

Stock Notes.

Mr. James McFarlane, of Clinton, Ont., recently imported three Polled-Angus heifers and one bull of the same breed.

Miller's Tick Destroyer for sheep is now in order, kills the ticks, is said to improve the lustre and growth of the wool, and prevents it from coating.

Our subscribers who answer advertisements will benefit themselves and the FARMER'S ADVOCATE by mentioning in what paper they saw the advertisement.

Messrs. T. H. Love & Co., of Montreal, have purchased Kentucky Prince, jr., foaled in 1874, by Kentucky Prince out of a mare by Mambrino Patchen. He is a chestnut, standing 16 hands and weighing 1200 lbs.

Mr. L. G. Drew, of Oshawa, Ont., recently imported a lot of Hereford cattle. The purchases were made from Mr. Hill, of Telhampton Court, O. The herd includes a number of well pedigreed animals.

Mr. T. D. Curtis, of Syracuse, N. Y., has been appointed by the Wisconsin Dairymen's Association to visit the dairying portions of the State in order to give instructions in cheese-making. One of the chief objects is to secure uniformity of quality.

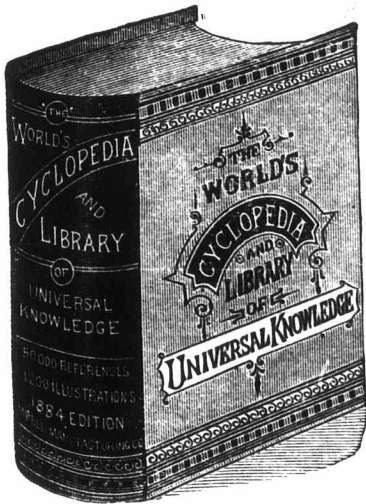
STOCK FARM.—Hiram Walker, of Waverly, has just purchased 1,500 acres of land near Bothwell, from Mr. Boughner, a banker of that place. The land is to be used for a vast stock farm, in a manner similar to the Geary Bros.' at that place.

The highest price realized at the late sale of Shorthorns by Geo. Fox, Elmhurst Park, was 210 guineas, paid by H. Y. Attrill, Ringwood Park, Goderich, Ont., for Cherry Duchess of Elmhurst. Fifty-two Shorthorns sold at the sale averaged not quite £50 each.

The Messrs. H. & I. Groff, of Ontario, have lately purchased the giant Shorthorn steer, General H. Pickard, from Mr. James Pickard, of Exeter. This steer is three years and ten months old, and weighs nearly 3,000 pounds, the largest steer perhaps in Canada. The General is well proportioned, and is in fair average condition.

Mr. Edgar Hindekoper, Meadville, Pa., reports that his Holstein cow "Violet" yielded 18,677½ lbs. of milk during the year ending March 24th last. The highest yield for one day was 86 lbs. 12 oz.; average per day for the year 51.03 lbs. From the milk of seven days, ending June 21st, 1883, 19 lbs. 9 oz. of butter were made. This report is verified by affidavits from himself and the two men who did the milking.

Mr. Wm. Hendrie, of Hamilton, has bought at New York the highly bred mare Genipa, foaled 1872, by imp. Leamington out of imp. Genista, by the English King Tom. Mr. Hendrie has sent Genipa to Mr. Pierre Lorilliard's imp. Siddartha, by Pero Gomez out of The Pearl, by Newminster. Mr. Hendrie's mare, Beautiful Star, by Harry Basset out of imp. Eastern Star, has dropped a fine healthy-looking colt to Big Sandy. Mr. Hendrie has named the youngster Lucky Star, and we hope he will prove such. Mr. Hendrie's mare, Wild Star, is daily expected to drop a foal to Long Taw.



THE MARVEL OF THE AGE!
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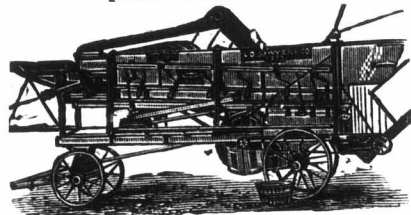
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Perfection of Parts, Ease of Management,
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We have Machines working in all parts of Canada, giving the very best satisfaction, when driven by either Steam or Horse Power.

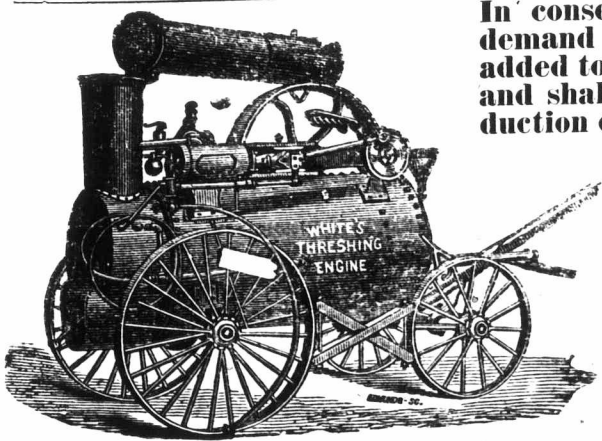
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SPECIAL SIZE MADE FOR STEAM POWER.

Address us for Circular and Price List of THRESHERS, CLOVER MILLS, HORSE POWERS, REAPERS AND MOWERS. A personal inspection is solicited.

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HAMILTON, ONT., CANADA

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219-y

In consequence of the increased demand for my ENGINES, I have added to my shops and machinery, and shall largely increase the production of engines for 1884.

It is licensed by all Insurance Co.'s and has proved itself to be the most durable.

The Engine for the Northwest is made to burn either coal, wood or straw.

Farmers, procure a Genuine White Threshing Engine at the Forest City Machine Works, London, Ont., Can.

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ESTABLISHED 30 YEARS.

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A few simple Testimonials that Speak for Themselves.

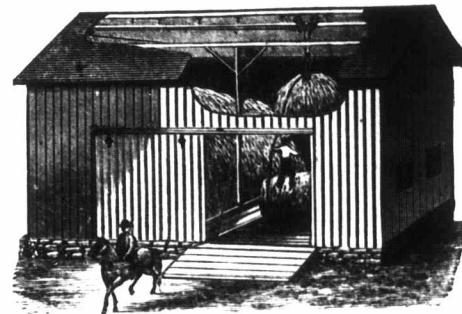
Ottawa, September 3rd, 1883.
A. NORMAN, Esq.—Dear Sir,—I have experienced considerable benefit from your appliances. I feel stronger and better every day.

Yours truly, R. E. HALIBURTON.

Peterborough, October 15, 1883.
A. NORMAN, Esq.—Dear Sir,—Soon after I commenced to use your Electric Appliances, they opened my bowels, cured my cough and cold, relieved my head, and considerably relieved my catarrh in consequence. The discharges from my head and chest are now easy, and I feel altogether better. My digestion has improved, my stomach is less sour and windy, and I am less troubled with lascivious and vivid dreams. I had previously tried almost all the advertised patent medicines without deriving any good.

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or via Kansas City and Atchison to Denver, connecting in Union Depots at Kansas City, Atchison, Omaha and Denver with through trains for **SAN FRANCISCO,**

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And all points in the South-West. **TOURISTS AND HEALTH-SEEKERS** should not forget the fact that Round Trip tickets at reduced rates can be purchased via this **Great Through Line,** to all the Health and Pleasure Resorts of the West and South-West, including the Mountains of **COLORADO,** the Valley of the Yosemite, the

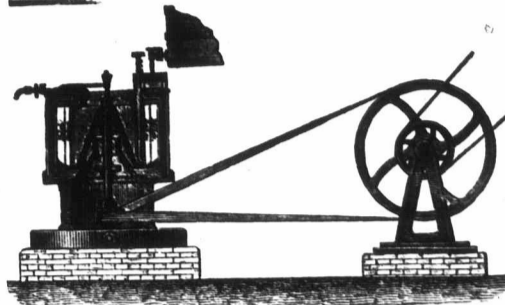
CITY OF MEXICO, and all points in the Mexican Republic. **HOME-SEEKERS**

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The IMPROVED DANISH MILK SEPARATOR of Burmeister & Wain

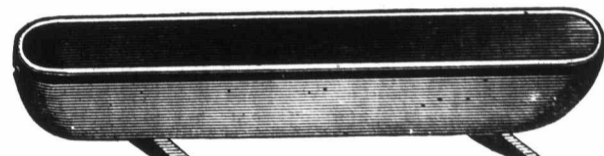


which was awarded two gold medals (one in class A, separators for two horses, and the other in class B, or separators for one horse) at the Alborg Centrifugal Milk Separator competition, and also a silver medal at the last St. John, N. B., exhibition. The large size, A machine, requires 1 1/2 horse-power to run it, and will skim 1,200 pounds of milk per hour. The B size requires 0.88 horse-power and will skim 700 pounds per hour. A summing-up of the result of the Aalborg and Vesterung competition may be described as follows:—1st, With the same completeness of skimming and the same quantity of milk worked per hour, DeLaval's separator requires one-third more power. 2nd, With the same completeness of skimming and the same consumption of power, Burmeister & Wain's small (B) separator skims one-third more milk than DeLaval's. 3rd, With the same quantity of milk worked per hour and the same consumption of power, DeLaval's leaves 64 to 65 per cent. more fat in the skim milk. The same report shows that Burmeister & Wain's large size separator requires 1.50 horse-power. Table showing the relative maximum capacity of the Burmeister & Wain and the DeLaval milk separators, and the amount of motive power required to drive them.

J. N. FJORD'S TABLE.

	Capacity.	Completeness of skimming.	Speed.	Motive power required.
	Pounds per hour	Fat left in the skim milk.	Revolutions per minute.	Horse-power.
Laval Separator.....	700 lbs.	0.29	7,000	1.20
Burmeister & Wain (small size).....	700 lbs.	0.30	3,000	0.88
Burmeister & Wain (large size).....	1,200 lbs.	0.25	2,000	1.50

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 Made also with Divisions in Trough.

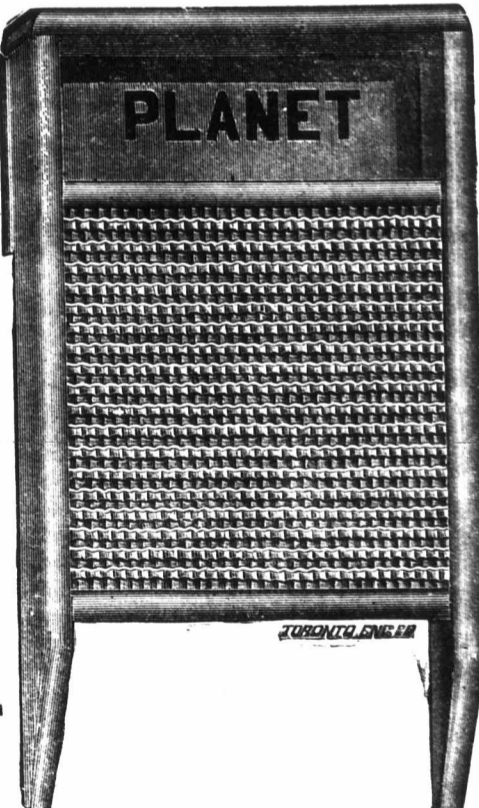
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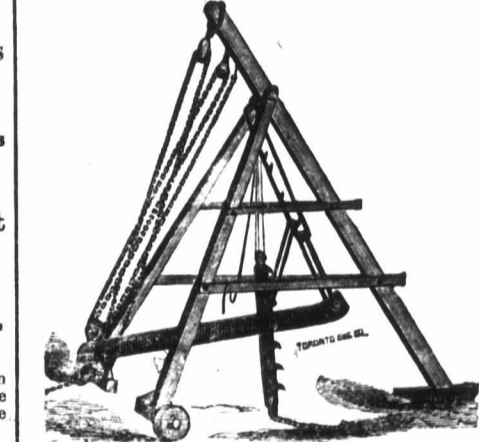
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The Canadian

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It claims to have no superior in any of its departments of **Stock Raising, the Farm, the Dairy, Poultry, the Apiary, Horticulture and the Home.**

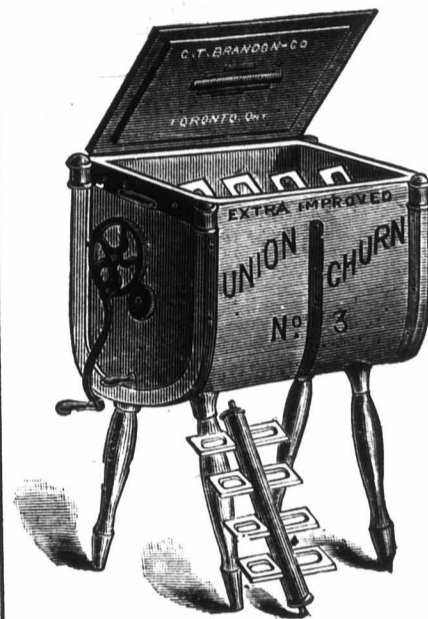
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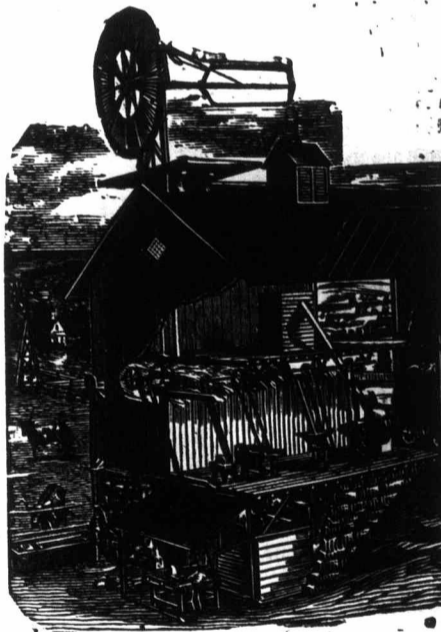
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Yours truly, EDWIN KEELER, Maitland P. O.