

FARMER'S ADVOCATE

AND HOME MAGAZINE.

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THE EXHIBITION NUMBER

—OF THE—

Farmer's Advocate

AND HOME MAGAZINE

FOR 1880

WILL BE ISSUED ON OR ABOUT THE
TENTH SEPTEMBER NEXT.

Our fourth annual issue of this fast increasing and most successful advertising medium will be the best one ever issued. While thanking our patrons of former years, and the patrons of the ADVOCATE, for their confidence in our endeavors to promote their interests, we can assure them that our endeavors will not be relaxed, and that the increased facilities now in our hands will be used to the utmost for their benefit.

The circulation will be carefully divided among the leading farmers throughout the Dominion.

Prospectuses will be issued on the 15th July, and space can now be reserved.

Send for a Circular at once.

The Month.

With few exceptions, everything promises well both for the farmer and the gardener. The recent rains, with cool nights and warm days, have had the effect of producing an early and luxuriant growth in almost every section of the country; and should no misfortune come, we are sure to have a bountiful harvest. Spring grains in most sections look well, and the fall wheat, where not winter-killed, is very promising. Roots of all kinds are in advance of former years and promise well. To those who have any spare land we would recommend Hungarian grass or millet, which, if sown thick, say at the rate of three pecks per acre, will produce excellent green feed, and should frost keep off until late, will make an excellent substitute for hay. Corn for late fodder may yet be sown. Grass land or early stubble can now be plowed and prepared for a crop of rape, which will produce an abundance of good fall feed, and what is not eaten should be plowed under, as it will make a prime green manure.

White Globe, Greystone or Yellow Aberdeen turnips may be sown all through July, and if properly housed, will keep well until the end of January. After early vegetables, potatoes, etc., are used, cabbages may be planted on the same ground. Buckwheat will be found a great acquisition on newly broken-up land; no other crop is so effective in mellowing a rough, cloddy field.

Fruit will be ripening rapidly this month. Have crates, baskets, etc., for packing, on hand:

in shipping, careful assorting and good packages are the first considerations.

In the kitchen garden sprinkle your cucumbers with tobacco water to keep off the striped beetle. Harvest onions as soon as the tops die down, and store in a cool, airy place. Keep your tomatoes up from the ground, which can be done by various simple contrivances.

The flower garden will also require a little attention. The ground must be kept mellow, clean and moist. Stake all fall flowering plants, such as dahlias, gladiolas, etc., and keep all climbers well trained, tying with soft twine, tape or pieces of cloth.

Do not let the weeds get a start in the corn or turnip fields; stir the soil often and thoroughly. Thistles and all weeds and briars should be cut as soon as they come into blossom. Go around every field and mow the fence corners where practicable. Put the hay in large cocks, where it may remain until you can take it to the barn, but in any case clear the corners of briars, thistles and weeds.

See that shade and water is provided for the farm animals; salt should be given weekly, if not always kept before them, which is the better way. If the grass is getting short, feed green fodder plentifully. Calves and pigs are often neglected at this time of the year. Do not neglect yours; you lose money if they are not continually gaining.

On the Wing.

ST. JOHN, NEW BRUNSWICK.

Left London June 15th, via G. W. R. to Ingersoll; thence by Credit Valley R. R. to Toronto. This line is in pretty good running order, but the country through which it passes does not look as well as on either the G. T. R. or G. W. R. from London to Toronto. The crops where the land was good looked very promising, except a few fields of spring wheat, oats and barley; the wire worm appeared to be affecting them, judging from their appearance as we passed.

In the evening we took the G. T. R. for Montreal. Of what little we saw of the state of the crops on this line, the winter wheat did not look near as promising as in the west; but the spring crops (barley being the leading one) looked very well; the hay crop looks unusually promising on the western part of the line.

16th—Took the boat at Montreal and arrived at Point Levis, opposite Quebec. On the 17th took Intercolonial R. R. at Point Levis, and arrived at St. John, N. B., on the 18th.

The Province of Quebec.—We are all apt to admire a person who excels in any calling, but most rules have exceptions. The French Canadians we think well entitled to the palm of honor as being the worst lot of farmers we have ever seen, judging from what we observed between Point Levis and New Brunswick. We passed through

some very good farming land. The land is all laid out in long and narrow lots. It is all plowed lengthways, and appears as if it always has been. Cross plowing or summer fallowing does not appear to be understood. Where the land is good it is generally all cleared—not a vestige of a tree left—and as to planting they appear to have despised such an idea. On looking over the farms from a distance they appear like a sea of rails, as nothing else is to be seen. Their fences are all straight (so much to their credit). They are posts or two short rails set in the ground and tied or pinned together with six rails placed in each pannel. They are all alike. There are no ugly snake fences to be seen. No tree must be in or near their ground, or so very few that it would appear that trees were prohibited. Very little stock of any kind is to be seen, and what little is visible has been most miserably maintained. Timothy, oats and potatoes appear their principal products. The majority of them appear to have a home-made windmill to thresh their grain. We were informed that red clover would grow, but that the farmers would not spend money to purchase seed. Our informant says they value their farms at \$3,000 to \$4,000 and sell about \$100 worth of produce—enough to get them groceries, boots, &c. They live very plainly. They will not sell land if it can be avoided by any means, and if an enterprising American or Scotchman should get a place they will make things unpleasant for them. They will not read, and will just go on in the old ways of their grandfathers, and yet they are happy and contented. Their reason for not having trees is that they will rot their fences and buildings, and cause snow to lay in drifts. We passed a great deal of land that was far too poor to attempt to farm. As soon as we crossed the line into New Brunswick the farms had a much neater and more thrifty appearance—a different class of people had them. We passed through an immense tract of land that is valueless, but as we approach St. John there are at intervals farms that appear very desirable. The dew weighed down the grass crop as often seen in Europe, but never in the west. It was quite pleasing to see it. Red clover was growing luxuriantly, even by the side of the roadway, and was a cheering sight after passing the long, dreary road through the poorly-farmed Province of Quebec and the poor lands in New Brunswick. We were provided with a waterproof, as we expected we might require it in this part of Canada, but we little thought that we should require it while seated in the cars on the 17th of June. But we were glad to put it on, and we had a fire in the car also, and yet we felt cold. This was at night and near St. John; but now we appear acclimatized already and like the climate much. The days are warm but the nights are cool.

Our Prize Essays.

A prize of five dollars will be given for the best essay on the "Management of Agricultural Exhibitions." The essay which contains the most practical hints on improving their utility and practical efficiency will be awarded the prize. We will allow all to compete for this prize whether subscribers or not. The essay must be in our office by the 15th of August.

Competitors must write on one side of the paper only. The essay receiving the prize is to be the property of this journal. Unsuccessful essays will be returned on request by sending stamps for return postage.

English Letter, No. 15.

[FROM OUR OWN CORRESPONDENT.]

Liverpool, June 3.

Those potent damsels, Dame Fortune and Dame Nature, seem at last inclined to smile a little on the British farmer. Last season, as you will remember, was so persistently wet that he never had a chance of harvesting decent crops; and the excessive moisture generated the "fluke" which has played such havoc during the winter and early spring amongst his sheep. Then the whole spring has been one of probably unprecedented drought. From the middle of February to the end of May there were not half a dozen rainy days, and serious alarm was felt for the safety not only of the hay, but of the grain and root crops. Just in the nick of time, however, a plentiful rain has come, and a friend of mine who happened to visit a farming relative in the Midland Counties on the first soaking day says he was literally dancing for joy. A first-class hay crop, if there comes anything like a favorable gathering time, is now assured, for the knowing ones say that a cold, dry March, April and early part of May, with moist, warm weather to follow, are very favorable to the grass crops, because such early weather tends to the strengthening of the roots, and the formation of a close, compact sward. Then, when the change comes, it shoots up in a close, fresh, compact mass, full of nutriment, and yields the perfection of hay. On the contrary, a warm and wet early spring causes the grass to shoot up thinly, and if the moisture continue, the lower portions to rot, and the whole to be very inferior by mowing time comes. Wheat can stand drought better than any farm crop we have, but even that is looking wonderfully better under the rain drops. Moreover, the long spell of dry cold weather will have killed the fluke, and farmers will be able to save a remnant of their flocks. Fruit promises fairly well, though the dry weather has favored the development of grubs, or "bugs," as you call them, of all sorts and sizes, to an unwonted extent. Altogether, the English farmer has a better prospect before him than for several years past.

On the other hand, I learn that in Eastern Europe crops generally, and wheat especially, are promising anything but well. It might be supposed that there is no particular association between wheat and politics, and yet it is possible to conceive that a failure of the wheat harvest in Russia would be accepted by the most inveterate of Jingoese as a good reason why Russian designs on India, if such really exist, should be cooled for a time. A failure of crops in Russia is probably a more serious business relatively for her than for any other European country, for she has little else to depend on.

The first shipments of cattle from the St. Lawrence have now arrived, and I am glad to say have returned higher profits, all round, than probably were ever known before in the trade. The cattle have certainly been of extraordinarily fine quality; and it is highly amusing to notice the way in which those dealers who are solely connected with the import of United States beasts, and who consequently have to accept from 20 to 30 dollars per head less for their cattle on account of the compulsory slaughter, persist in stating that these cattle are States cattle in reality, and that they must have been conveyed over the ice, or in some occult way, into the Dominion. It is very gratifying to find that the efforts of your journal during the last few years, in impressing upon the farmers of Ontario the importance of employing a better class of bulls, and of employing every possible means to bring their horned stock up to the standard of our markets here, are now bearing fruit. This improvement tends not only to the

advantage of the farmers individually, but greatly to that of the country at large.

The sheep rot, or "fluke in the liver," has made fearful work in the flocks of our western and southern counties, and is now, I regret to say, showing itself in some of the hill districts of the north. The dry weather has checked its ravages somewhat, but enough harm has been done, I should imagine, to render the import of fairly well-bred sheep a profitable business for some time to come.

Live stock on the continent is, I hear, unusually limited in numbers; and this, added to the almost extermination of sheep and lambs in some districts of England, improves the prospects of your exporters. Let your farmers only pay as much attention to the improvement of their sheep as they appear to be doing in the case of their cattle, and they will not often lack a profitable market.

I understand that the Royal Agricultural Show, which will be held at Carlisle this year, is in future to be limited to exhibits which are of a strictly agricultural character. It is quite time that some check were put upon the universal element. It will be remembered by many of your readers that, of recent years, our principal shows have taken the form rather of a Nidgni Novgored, or World's Fair, where everything required by humanity from the cradle to the coffin can be bought and sold, than of the strictly class and professional character for which they were designed. The reason principally assigned, I believe, for thus curtailing the extent of the exhibition, is the need of more space for the genuinely agricultural exhibits. Agricultural interests certainly will not suffer by the change.

Mr. Richard Gibson, of Iderton, Ontario, a member of your agricultural commission, has returned to Canada by the Cunard steamer *Seythia*, which sailed on Saturday last. Mr. Gibson whilst here attended the sale of Mr. Henry Lovatt's Shorthorns, held by Mr. Thornton at Low Hill, Bushbury, Wolverhampton, and secured a very handsome heifer, Lady Oxford Barrington. There were about 250 gentlemen and breeders present, and those cattle which were in good breeding order made very fair prices. The top price was paid by Lord Bective for Lot 30, the Countess of Oxford, 530 guineas.

I notice that large quantities of potatoes are coming from Prince Edward's Island, whilst the supply of new ones is being drawn from Malta, Northern Africa and Portugal. This proves how truly cosmopolitan the English table is in its character.

A prospectus has been issued of a scheme for sending frozen vegetables from Australia to India, the Australians believing that, when thawed, they will be as good as anything which can be bought in England. In India, it seems, turnips, carrots, peas and even potatoes speedily change their character when cultivated, and become useless. If the Australians succeed in this venture, there is no reason why Canada should not try the experiment to some of the tropical countries to which her ships trade.

Those of your readers who hail from the Mother Country will be interested to learn that the new Government are endeavoring by means of their bill to enable farmers to kill hares and rabbits on their own farms, to effect a compromise on the much disputed question of the Game Laws. It remains to be seen how far they will succeed; but if the bill passes, as no doubt it will, there can be little doubt that one speedy result will be a great reduction in the head of ground game; this will tell on the markets, and if you have hares or rabbits to send, they will be sure to meet with a cordial reception.

The great contest of the English racing year took place at Epsom on the 26th of May, and by way of a change, the blue ribbon of the turf was won by the first favorite, Bend Or, the property of the Duke of Westminster. The jockey was the famous Fred Archer, who won the French Derby on the Sunday previous. The aggregate income of this king of the turf, or, as he is termed by the sporting fraternity, "the Demon," is estimated far to exceed the official salary of the Prime Minister of England.

Recreation.

The farmer, his wife and his family are all benefited by an occasional holiday. The Queen's Birthday is the first suitable day for out-of-door gatherings, and is generally loyally and merrily observed by the majority. Dominion Day, occurring at a warmer season, is often more generally observed. Occasional special picnics and our agricultural exhibitions are all tending to improve, instruct and cheer us onward, that we may enjoy and profit by the blessings granted to us. We hope that every one of our readers make it a particular point to give all in their charge an occasional holiday.

The largest gathering that has taken place in this vicinity has been the annual Farmers' Picnic at Port Stanley. It was commenced twelve years ago, and the numbers in attendance have increased every year. The gathering this year was variously estimated at from 5,000 to 15,000. The attractions were numerous. The dance appeared to draw the greater number of young men and women, while the steamboat ride, and walks and talks drew thousands that desired a more quiet way of enjoyment; the children enjoyed the swings, elevators, tramways and acrobatic sports. A smaller number of thinking people, office holders and office seekers listened to political and other addresses. Mr. Johnston, the late Principal of the Agricultural College, delivered the only address that was devoted to agriculture; it was the only suitable speech delivered for such an occasion, and he deserves great credit for his masterly address, though we must dissent from some of his statements. He spoke of the fertility of the Provinces and the great improvements made in the country. He dwelt on the problem at present occupying the attention of agriculturists in Canada—the competing in the markets of the world with France, the United States, Egypt, India, our own great Northwest and South America. He said the Province is producing at too great an expense. With regard to the cost of production, he took a farm of 150 acres sown in succession, for example. Land is worth say \$60 per acre; the implements and stock cost \$3,000. That amounts to \$12,000 capital invested, or \$80 for every acre. What is the cost of production for that acre? Including wages and labor, interest upon \$80 at 7½ per cent., the cost of seed and cattle, the cost of production is \$20 per acre. What is the return for that amount of expenditure? Thirty bushels of peas per acre, or 1½ tons of hay, or 40 or 50 bushels of oats per acre. You will find that your products will only bring \$18, an absolute loss per acre of \$2—a loss of \$150 on the one hundred and fifty acre farm.

We do not agree with Prof. Johnston in his calculation. Farmers are not such fools as to labor on for many years at a dead loss annually of \$200 on every 100-acre farm. We know farmers have accumulated wealth by agriculture. It were easy to point out the fallacies by which he arrives at his conclusions—the supposititious capital, the over-rated expenditure, the light produce, but we hope the question will be taken up by some of our agricultural readers. To

them we leave the putting the question in its proper light.

We also give the following description of the gathering, written by a gentleman well known to all the leading farmers in Canada. It contains good wishes previously expressed by us, and we deem it deserving a careful perusal by all; good may result to those who regard the hints thrown out in it. Plain truths spoken by a friend are more wholesome than the honeyed sayings of flatterers.

As a pleasure excursion and enjoyable holiday, the affair was all that could be wished. The gathering was large, the weather superb, the railway accommodation ample, and all passed off without anything in the way of misfortune or accident. To farmers and their families it was a pleasant episode in the usual monotony of what, with all its advantages, is a toilsome and busy life. If such holidays were taken oftener, they would greatly relieve the sameness and the tameness, the drudgery and the weariness which cling so tenaciously to the pursuits of husbandry. It is well when the hurry of spring work is over, when the rush of harvest is past, when the stores of autumn are housed, and when the reign of winter has set in, that the toil-worn ruralist should "rest and be thankful," put on his holiday attire, take his wife and children to some festive gathering, say "begone dull care," and enjoy a day of wholesome and inspiring recreation. Each of the four seasons at least should have its farmer's holiday, as an offset to its inexorable demand for hard work. Not rest merely, but recreation is needed, as a counterpoise to "the busy toils of the industrious year."

But the occasion in question was not only a gala day, it was the anniversary of the Grange Order, and a demonstration in honor of its principles and aims. As such, candour compels the statement that it was in several respects a failure. But little interest was taken in the most important part of the programme. Not one-tenth of the picnickers gathered around the platform to listen to the addresses. One would have thought that the country folks, whose seldom have an opportunity of hearing speeches, would have been eager to make the most of this excellent chance to do so. It was a poor commentary on the statement made by one of the speakers, that the Grange comprised more intelligence in its ranks than any other equal number of farmers, that so few showed an appetite for "the feast of reason and the flow of soul." If the speakers platform had been a "Cheap Jack" stand, at which stunning bargains in dry goods and groceries were offered, a miniature circus, or a "Punch and Judy" show, it would probably have attracted a large audience. It is hardly possible to conceive of any style of public entertainment that could have drawn more out of proportion to the crowd on the grounds, most of whom, according to the principles of the Grange, profess a supreme anxiety for "the improvement of the soil and the mind."

In the addresses delivered there was a conspicuous absence of reference to objects contemplated by the Grange, the considerations that should induce farmers to join it, proof of its usefulness and the like. The chairman and those of the speakers who were introduced as "live Grangers," might surely have condescended some information on these points. Neglect of this was not caused by the supposition that all present were already Grangers, for distinct allusion was made to the fact that many present were outside the pale of membership; but the only appeal was, "Hurrah, boys, we're a big organization, we're going to sweep the country, we're bound to fill the legislature with farmers, we mean to take possession of business, railroads and politics; come and join us or you'll be left out in the cold." The amount of bombast indulged in was, to say the least, excessive. One "live Granger" affirmed that the Order had gained more converts during the six years of its history than Christianity itself had won during the same space of time, a remark painfully suggestively of the question, "Will it live as long?" A mushroom style of growth is not apt to result in the production of an oak. "Late ripe, late rotten," is usually the law of things.

One "live Granger" complained that outsiders were called on to do the chief part of the speaking, instead of members of the Order. This part of the proceedings would have been a sorry affair but for the "outsiders." The only really good speech was that of Mr. Johnston, ex-President of the Agricultural College. Indeed, he was the only speaker who seemed to have made any preparation, or at all to rise to the dignity and importance of the occasion. It was observable that not a solitary

"outsider" endorsed the Grange, or expressed the least admiration of it. All, of course, were happy to be present on such a festive occasion, but not one patted the Grange on the back as a good institution. The M. P. and M. P. P.'s who spoke would have been stupid indeed not to see that there was a chance to make influence, but they were very chary as to endorsing the Order. Seeing that "outsiders" could not, even under stress of courtesy and the temptation to court political influence, indulge in eulogy of the Order, why did not some "live Granger" explain its principles and aims, point out the good it is doing, and bring forth strong reasons why "everybody and his wife" should join it?

There was also lamentable deficiency of practical talk about agriculture. Mr. Johnston's able address was chiefly taken up with the political economy aspects of farming, and though the matter was simplified perhaps as much as the nature of the subject admits, it may be seriously questioned whether any considerable proportion of the audience understood "the law of diminishing return" and things of that sort. Why did not some "live Granger" say something on the thousand and one topics of pressing and practical interest connected with the business of the farm? Irrespective of Grangerism, had no one the gumption to give the assembly a few hints in the direction of better farming? Or, if it was desirable to forget for "one glad, oblivious day" the hard work of the farm, would not something on rendering moral homes more beautiful and attractive, or family and neighborhood libraries, on making Grange meetings interesting and profitable, on raising the mental and social status of the farming community, and so forth, have been eminently in order? So far as these and other subjects of the highest importance to the agricultural class were concerned, the opportunity of making useful impressions was completely thrown away.

One of the "live Grangers" was a little sarcastic in view of the compliments paid to farmers as to their being the bone and sinew of the country, while it was notorious that scarcely any of them got into Parliaments or obtained civil service appointments. Why this is so is a good conundrum to consider at Grange meetings, when time can be spared from the more important business of parcelling out tea and sugar, making up wholesale orders and going through forms and ceremonies. Ambition is well, but qualification is better. There is nothing in our institutions to repress farmers if they will fit themselves for the high places of the land. "A man's gift maketh room for him," and there is always room up-stairs for the man who has the energy to work his way there. It was quite evident that some of the "live Grangers" who speecified at the picnic felt maltreated that they were not in Parliament, but whether any one of them could have been elected had the crowd present been a body of voters empowered to appoint "a fit and proper person" as their representative, is a point on which it might be hazardous to express an opinion. It is, indeed, desirable that farmers take their proportionate place in our legislative halls, and if they use the means adopted by other classes they will undoubtedly do so. There is no shorter or easier road to place and power for them than for others. "Who would be free themselves must strike the blow."

It is the great fault of the Grange that its actual working does not harmonize with its professed principles. Nominally organized for broad, patriotic purposes, its energies are too much directed into narrow and selfish channels. It has done something in the way of cheapening certain articles that farmers have to buy, but it has been mainly by substituting the cash principle for the system of credit. Any man can do that on his own hook. It has created a lot of offices, about which there is no end of scrambling and contention. It has started some local business enterprises, none of which are or can be very flourishing, because the laws of trade are dead set against them. It is dabbling in certain financial schemes, the upshot of which is sure to be that somebody will be hurt. But what has it done or is it doing for the main object of its existence? In what way have the agricultural interests of Canada, properly so called, been helped on the road to prosperity by it? It is surely not unreasonable to demand on its sixth birthday some record of achievement beyond the mere enrolling of members.

These criticisms are penned in no unfriendly spirit. Agriculture has no truer friend than the writer of them. So far as the Grange is concerned, he has not been an "outsider," but a member, ready to work, not indeed for the petty, selfish schemes that have occupied the chief attention of Grangers, but for that great national interest whose promotion was professedly the grand object contemplated

by the Order. It has been with pain and regret that he has felt called upon, from time to time, to raise the warning voice and point out whither things are drifting. Taking a survey of the country at large, which he is in a position to do, it is but too evident to his mind that the Grange must either take a "new departure," and attend to its own proper business, or go to the wall. There never was a more empty boast than that made at the recent picnic, to the effect that the Grange is drawing around it the intelligence and wealth of the country. The reverse of this is the fact. It may be as well to inform those who indulge in this kind of vaunt, that stock has been taken of the Grange throughout Ontario, and that with the exception of the county of Elgin, and one or two other like counties, very few of the leading agriculturists of the Province are found to be in connection with the Order. Lists of the best farmers in the various localities of the Province have been made on the basis of information furnished by competent residents, such as township and county officials, and with the exceptions named, nineteen-twentieths of the best farmers of Ontario stand aloof from the Grange. Now, are our leading farmers fools, or is there that about the actual working of the Grange which fails to commend itself to their better judgment? Here is a second conundrum for Grange meetings to solve, and it would be well if the Dominion Grange would devote special attention to it.

All true friends of agriculture desire to see farmers unite in a solid phalanx for the promotion of that great interest on which the prosperity of the country is mainly dependent. No one is small-minded enough not to wish that the Grange might be that organization, were it so managed as to meet the public want. Nobody has murderous designs on it, but it is only the part of kindness, when it is plainly to be seen that it is taking slow poison, to warn it against the folly and sin of suicide.

The Agricultural Commission.

The commissioners especially appointed to the department of forest, fruit, insectivorous insects and bees, have had their first meeting. Several fruit growers were present by invitation to state their experience in the matters to be enquired into. The questions were principally put by Mr. Saunders, who has an intimate knowledge of the subjects of the department. From their proceedings we glean a few notes:

The Niagara district is the greatest fruit-growing district in Canada; in it are grown all fruits suitable to the temperate zone. Apples are most generally raised, and the trees come into bearing at an average of six years after being planted. They are usually planted from 30 to 35 feet apart. The planting of more pear trees is recommended. In the Niagara district the pear crop is considered to be quite as reliable as the apple crop, and pear trees are more regular in their bearing than the apple trees. The conditions which appear to be most favorable to check the ravages of blight, to which pear trees have become subject throughout the country, are great atmospheric humidity, and vicinity to the lakes, where the extreme cold is tempered by the water.

Peaches require a warm, light soil. If the people would take pains to raise seedling peaches, they would gradually get a race of trees much hardier than those brought from a more southern country.

Planting of Forest Trees.—The seeds of trees should be gathered as soon as ripe, and planted immediately in drills, and at a depth varying according to the size of the seed. Evergreens form the best shelter for orchards, as they form shelter in the winter, when it is most needed.

CABBAGE WORMS.—Water heated to about 160° is reported to be a very effective remedy for the cabbage worm. It should be applied to the plants as soon as the worms appear. The cabbage worms are hatched from eggs deposited by a medium-sized butterfly, which is white with a few black spots. These appear early in the season, and should be destroyed whenever possible. You thus reduce the number of parents, and thereby reduce the number of worms.

From the United States.

[BY OUR OWN CORRESPONDENT.]

Washington, D. C., June 18, 1880.

Recent reports to the Agricultural Department from various sections of the United States give most flattering promise of good crops and abundant harvests. The only exceptions are in the extreme Northwest, from floods and heavy rains, and in a portion of the east, from the ravages of the Army Worm. Prof. J. H. Comstock, the entomologist of the Agricultural Department, has just returned from a tour of scientific observation and investigation in Delaware and Long Island, where he went to ascertain the causes which led to the appearance this season of such vast numbers of the Army and Cotton Worms. The investigation and study of the question, when completed, will be given to the public, the probable cause of their vast increase at the season stated, and a remedy suggested. As these ravagers of our crops are at each successive raid appearing further northward, it will soon be time for our agricultural brethren of Canada to give the subject some study and observation.

General Le Duc, Commissioner of Agriculture, will start for South Carolina in a day or two for the purpose of establishing a tea-plantation in that State, Congress having appropriated the meagre sum of \$5,000 for the purpose. The establishment of the National Tea Plantation and its cultivation will be under the immediate supervision of a Scotchman, who was for 18 years in charge of a large tea plantation belonging to an English Company in the Province of Assam, India. For several years he has been engaged in the cultivation of the Assam tea in Georgia, an adjoining State to South Carolina, and the specimens of his tea now here on exhibition, when submitted to the inspection of New York tea brokers and importers, without its history, was pronounced a superior sample of best Assam tea. The amount expended each year for imported tea is about \$20,000,000. Its successful growth and preparation will prove a vast revenue to this country and afford cheap tea to Canada.

The Chinese method of preserving grapes so as to have them fresh or from the vine the entire year, consists in cutting a circular piece out of a ripe pumpkin or gourd, making an aperture large enough to admit the hand, the interior in them completely cleared out, the clusters of ripe grapes placed inside, the cover replaced firmly, and the pumpkin kept in a cool, dry place. It is said in China the gourd is used, but the experiment was made with a common field pumpkin. A German horticulturist informs me that he has tried an experiment, which he saw successfully carried out in Stuttgart, Germany, and that it gave him fine grapes entirely out of season in this cold climate, and which he says rivals the Chinese preservation. He rears the grape-vines in pots in a room or other sheltered place, and obtains fine clusters of grapes with very little trouble. His method is ingenious. A vigorous, healthy cutting of the late growth of the vine is taken, from three to four feet in length, leaving at the upper end two fruit buds. The cutting is to be entirely enveloped with moss and bound with bast, except the buds. The cutting is then inserted spirally into a large flower pot, leaving the buds projecting above. This is then filled with rich hot-bed earth, well moistened and set in the sun behind a window, and kept uniformly moist. When the two first buds produce branches, having bunches of grapes on them, the shoots are to be trimmed so that two sound leaves remain over each grape shoot in order to keep up the circulation of the sap. He alleges that he has, from grape shoots treated in this manner, had as high as six clusters to each shoot in the month of March.

LOTUS.

Rust in Wheat.

We know from scientific authority that 95 to 98 per cent. of all that goes to make up the entire mature wheat plant is derived from the atmosphere, and that those portions of the plant are organic or capable of being burned and evaporated into invisible grass. We know also from the same authority that the 2 or 5 per cent. remaining is derived from the earth, that it is inorganic, or incapable of being destroyed, for when the plants are burned there remain indestructible ashes. But scientific authority goes further, and shows us that without the presence of those inorganic substances in the soil which the wheat and other plants feed upon, the organic substances which the plants derive from the atmosphere cannot be taken up, digested, so to speak, and assimilated in a form to make a strong and healthy plant. Where both organic or inorganic matter are wanting there is barrenness; where both are present in suitable proportions for the growth of the plant, there is fruitfulness, and finally, where there is too much of one and too little of the other, there is one-sided development, and especially in the case of too much nitrogen, there is over-growth and a tendency to disease and decay. When we use much green manure on our wheat fields, the plants make a great growth of blades and straw at the expense of the grain, and the crop under unfavorable weather is pretty sure to blight, mildew or rust, and fall down. And the same results follow if we use an overdose of nitrate of soda or any other plant food of a similar nature. So, also, in hot and wet seasons, if near or at the time of harvest there is much thunder and lightning, the phenomena produce nitrogen in excess of the wants of the plant, and the same thing follows as where too much green manure or nitrate of soda is employed. There being in such cases a want of equilibrium between the quantity of organic matter furnished from the atmosphere and the inorganic derived from the earth, under the stimulus of heat and humidity, the cell matters of the plant are produced faster than it can be digested and assimilated, and hence they burst their bounds, whether of the leaf or stalk, and are instantly seized upon by the blight, mildew and rust fungus germs, always floating in the air at such seasons and temperatures. This brief and necessarily imperfect statement of the cause of the fungus diseases of the wheat plant covers the whole ground, and shows why it is that the phosphates which supply so large a portion of the ash of many of the cereals, is the best if not the only known preventive of rust, mildew and blight.—[Ex.]

Live Stock—Its Relation to Wheat Growing.

Prof. Manly Miles, of the Michigan Agricultural College, has, as we notice by the Farmer, made some suggestive comparisons in which the relations of the yield of wheat per acre to the number of cattle and sheep to each 100 acres of improved land is shown in the most striking manner.

The countries that have an average number, or more, of cattle and sheep—with two exceptions that may be readily explained by local causes—have more than an average yield of wheat per acre, while those that have considerably less than the average number of cattle and sheep have less than the average yield of wheat; and in the latter class of cases an increased acreage of wheat has the effect of diminishing the yield of wheat below what might be expected from the small numbers of live stock.

These results, although surprising from their uniformity, were not unexpected, as they are in accordance with principles of farm economy that are recognized by all intelligent farmers.

In the country where commercial fertilizers are not in general use, the supply of barnyard manure must furnish a fair index of the fertility of farms that are nearly equal in natural productiveness, and the proportionate number of cattle and sheep kept on the farm will best indicate approximately the quantity of manure at command.

The acreage of grain must also have an influence on the results. An excess of grain without a corresponding supply of manure and high tillage must tend to produce a diminished yield per acre, while with a liberal manure supply, the yield of grain may be retained at a high average, even with an increased acreage.

Success in wheat growing seems, therefore, to depend largely upon the attention given to live stock, and the statistics under discussion agree fully with the old time saying: "The more cattle the more manure—the more manure the better crops."

Advice to Farmers.

Mr. Richard Gibson, of Ilderton, Ont., has just returned from a trip to the old country, and has been pleased to give our readers a most useful and interesting account of matters which should be known and carefully studied by our farmers, dairy-men and stockmen.

Mr. Richard Gibson having been only a month in England, and his own business requiring most of his time, he was unable to make exhaustive enquiries on behalf of the commission. The wheat in England was looking well, but was very backward. The crops generally were not sufficiently advanced to hazard a conjecture as to what they would yield. A full crop of roots might be expected, as owing to the dryness of the spring the soil was put in thorough preparation before sowing. Grass fed beef would be late owing to the backwardness of the pastures. The report continued as follows:—

I had a conversation with several butchers and dealers and they all took the same view of the Canadian cattle trade, viz., that the best time to ship is from February to August; that the grass fed stock should, for a few weeks previous to shipping, be fed some grain and so gradually prepared for the change to the dry food used on the voyage. That the stall fed cattle arrive in good condition without loss of flesh, but that the grass fed lose considerably. Unanimously they all speak out loud, "Why don't your people use better bulls? We know that you can grow as good cattle as can be found anywhere, for we have seen some sell in public this spring for £45 each; but not one in ten of the ordinary stock you send has paid for his keep. Send them good quality and breeding, and then if any accident happens so that they are bruised too badly to slaughter for market, they will sell for all that they are worth, to be grazed a few weeks; but no English grazer would ever think of buying such rough, coarse specimens as are most that you send, and if your farmers had to pay rent for, instead of owning their farms, they would soon be compelled to breed better stock. Again, a good trade could be done in steers, if we could get them of right quality. Two-year-old steers, such as we describe, would be worth more in public market than the rough old cows and steers you have sent." I made some enquiries as to the benefit Canada derives from the live stock trade, and the general opinion was that it was worth fully one cent per pound over the American cattle, but that owing to the large competition for space, and the limited shipping accommodation from Montreal, or rather the monopoly of the carrying trade by one or two wealthy companies, our farmers lose that benefit, as the shipper has to pay about that amount extra per head over what the American shippers were paying from New York. Sheep, the same complaint as to quality. "Why do your farmers send us nothing but rams and ewes? Wethers are worth from five to eight cents more per pound. Why?" "Because they contain so much more flesh that is lean meat of a much superior quality. To obtain the highest price, your sheep-breeders should use a Down cross on your common stock, and save your ram lambs for wethers." Which variety of the Downs would you recommend? Southdowns or Hampshires, because they contain the most flesh. Your sheep have large enough frame, but carry too much useless fat or tallow. The larger Downs, such as Oxfords or Shropshires, would not give you the lean meat as readily or satisfactorily as the smaller and purer varieties of Downs."

Along with Mr. Dyke, the Dominion agent, Liverpool, Eng., I called upon some of the largest American produce importers. We were kindly received, and every opportunity afforded us of examining and testing the different brands of cheese and butter.

The best makes of butter are from the Western States. A splendid consignment had just arrived from Illinois. We examined several kegs and found them uniform in quality, taste and color, in fact as the merchant observed:—"One is a sample of the lot; I can send the whole of that consignment out to my customers with perfect confidence, without opening a keg; they are always alike." Upon asking to see some Canadian, several kegs were opened, but not one was uniform, except, I am sorry to say, uniformly bad; soft, bad flavored and of different colors. Upon asking the question, "What is our remedy?" the reply was, "The only remedy is to establish creameries; formerly butter from this very district," pointing to the lot from Illinois, "was no better

than yours, now it is the finest brand imported into Liverpool, better than any we get from Ireland. Again, you must use fine English salt; your American and Canadian salt will not do, if you wish a slice of this trade. Another thing I wish to call your attention to is the kegs. Look at those all nicely planed inside as well as out, so that when a keg is inverted on the marble slab, generally used here, the butter comes out nice and in one piece. Yours are rough inside, and the butter is broken. All these things add to the market value; you must please the eye. Now look at that consignment, forwarded by one of your Montreal steamers, and this by a New York line. That looks as if it had been stowed in the ship's coal bunkers, this is as if the S. S. Co. were alive to their interests. We scarcely ever get a dirty keg by the one line, and as seldom a clean one by the other. The difference in appearance even in the kegs makes a difference in cents a pound. Again, when your people have got a really good article, whether in cheese, butter, or apples, &c., they should put in a nice, attractive stencil plate, and be not afraid to let the world know where such articles are produced. A little mean label, with Ontario in one corner, is of no use; people here do not know what it means. But I have something here to show you. Here are two of the best samples in the warehouse, and they will either drive Canadians out of the market, or force them to manufacture a better article. These samples are oleomargarine. Nothing but the finest creamery brands can compete with it. It is butter in smell, taste, and appearance, and none but experts can tell the difference. Another thing which deteriorates your butter is being kept too long before putting on the market. As to cheese, you send us as good as we can get."

I have come to these conclusions:—(1.) That to open up a butter trade you must establish creameries. (2.) Take more pains in finishing the butter tubs. (3.) Market the article as soon as made. (4.) Use fine salt, and effect improvements in transit, both by steamboat and rail.

John Hill, who lives in the 6th con. of Marlborough, has been awarded the medal given annually by Mr. G. W. Monk, M.P.P., for the best kept farm in the County of Carleton.

The latest swindle for use in rural districts is the "butter contract" game. A couple of nicely dressed, gentlemanly appearing fellows, of good address, drive up to a farmer's house with a fine turnout, and engage all his butter for the season at a big price. The farmer signs a contract to let the merchants have all his butter for a year, and in due course the "contract" comes back in the shape of a note held by a third party, which the farmer has to pay. And again the bogus fertilizer agent has been doing a thriving business in the County of Essex. He succeeded in disposing of large quantities of the stuff (which was never delivered), for which he obtained promissory notes to a considerable amount over \$1,000. These fell into the possession of Henry N. Williams, of Windsor, and it is alleged he attempted to collect them. At any rate he has been arrested on a charge of obtaining money under false pretences, and taken before Police Magistrate Bartlett, who held him for examination, his bail being fixed at \$3,000. Mr. Williams claims that he obtained the notes in a legitimate way, thinking they were genuine.

CHLORIDE OF LIME.—A French journal says that if chloride of lime be spread on the soil or near plants, insects and vermin will not be found near there, and adds:—"By its means plants will easily be protected from insect plagues by simply brushing over their stems with a solution of it." It has often been noticed that a patch of land which has been treated in this way remains religiously respected by grubs, while the unprotected beds round are literally devastated. Fruit trees may be guarded from the attacks of grubs by attaching to their trunks pieces of tow, smeared with a mixture of chloride of lime and hog's lard, and ants and grubs already in possession will rapidly vacate their position. Butterflies, again, will avoid all plants whose leaves have been sprinkled over with lime water."

To keep bugs off melon and squash vines, plant a tomato plant in each hill. By doing this the bugs did not bother them; while across the fence, where there were no tomatoes, they were all killed by the bugs.—Farmers' Union.

Veterinary.

Galled Shoulders and Back.

BY JAMES LAW, F. R. C. V. S.
(Professor of Veterinary Science, Cornell University.)

In the hot months perhaps no trouble is more annoying than the persistent development of sores on the shoulders and backs of horses that are depended on for the cultivation and harvesting of the crops. The work must be done, and the animal is strong, vigorous and hearty, so that there is no hindrance to his doing it, except the presence of a trifling sore at a point where the harness must rest and where its application causes exquisite pain. Nor does the trouble end here, for the sensitive horse will learn to balk to avoid the constant and painful pressure on the sore, and the nervous one will, after some hesitation, start with a spring, which severely injures the wound, endangers the harness and establishes a violent and intractable habit.

The causes of these sores are unquestionably the heat and the friction to which the skin is subjected, but many conditions pertaining to the constitution of the animal and its management strongly contribute to induce them. Some skins are naturally tender, and what has been thus inherited from the parent cannot be eradicated from the system. The conditions which maintain and increase such liability to inflammation and abrasion may, however, be largely corrected, and to these our attention should therefore be especially directed. The horse that perspires very readily and profusely suffers by the accumulation of the dried products on the harness and skin when they act as foreign bodies and irritants to a relaxed and susceptible surface. If the hair is unduly long and heavy, so as to favor such perspiration, the simple resort of clipping will often prove a complete preventative. While we do not advocate indiscriminate clipping, and above all in winter, we do not hesitate to affirm that in properly selected cases where the coat is unduly heavy, and induces excessive sweating, relaxation of the system and lack of vigor, this measure will often rectify all these faults and more than double the value of the animal.

In addition to clipping, or, independently of it, sponging of the skin with cold water to clear away the accumulations and the subsequent wetting with an astringent solution will do much to protect. Among the simplest lotions may be named a solution of $\frac{1}{4}$ oz. alum, 1 oz. white oak bark and a quart of water. For the same reason that the skin is cleansed so ought the harness, and all hard or knotted portions should be beaten until they become even, soft and pliant.

Sometimes the fault is largely due to lack of condition in the horse. If the muscles are soft and flaccid he perspires easily, and becomes increasingly liable to chafing. Here the prevention is manifestly to be sought in sound feeding and regular exercise before the hot weather of summer sets in, so that when that comes they will have hard resistant muscles and large powers of endurance without liability to drenching perspiration and chafing.

Again, a sudden change to rank or rapidly grown aqueous grasses or other green food, will cause such a relaxation of the system, and such a profuse secretion from the skin as from other organs, that the animals are very subject to galls and abrasions. A sound diet, consisting in part of grain and hay, should meet this difficulty, and a course of iron tonics may further fortify the system. Thus 1 oz. each of sulphate of iron and ground gentian root may be mixed and divided into eight powders, one of which can be given daily in the food.

No less important is it to secure a cool, clean, airy stable. Horses kept in close, damp buildings have the whole system undermined, and as they lack in condition they become liable, as above shown, to excessive sweating and to abrasions. But in addition the health suffers, and digestion is impaired. The products of digestion are not perfectly adapted for building up the tissues or maintaining the healthy functions of the more vital organs; the secretions are modified, and the altered and acid matters serve to irritate the skin alike as they circulate in the blood-vessels, as they are secreted in the sweat, and as they lodge and dry up on the surface. In this case cleanliness and astringent lotions will do much, but to strike at the root of the trouble, we must go back to the source of ill health, whether that is to be found in close, damp, filthy stables, in soft, aqueous or otherwise relaxing or indigestible food, in the existence of any chronic disorder, in overwork and debility, or in any of the many causes of loss of health or condition. It is only when these have been corrected that the local applications are likely to prove of permanent benefit.

When the sores have been already formed they may be treated by the lotion mentioned above, but with a drachm of powdered opium added to the quart of liquid. What is even more important than this, however, is that all pressure upon the sores should be prevented by a proper adjustment of the harness. In some cases the shoulder may be protected by wearing a breast-strap in place of a collar encircling the neck, or the saddle may be set on behind the gall and held there by a crupper. When the injury takes place at the mane only, a zinc shield inside the upper angle of the collar will often serve an excellent purpose. When all these fail, the point of the collar or saddle corresponding to the sore should be carefully marked. An incision may be made on each side of it through the lining and stuffing, and as much of the latter may be drawn out as will allow the lining to be beaten down into a distinct pit. Under these circumstances the pressure will cease at some distance from the margin of the wound, and that will be shielded from injury so that a recovery may be secured.

With the best grass it is necessary to grow green-fodder crops for cows, and sometimes for horses, for it is found that the grass alone will not support as many cows as the farm can and ought to carry on the other crops.

It is of the very utmost importance that stock should have good, pure water and plenty of it. The thirst of animals during the hot weather can readily be imagined from judging it by the human thirst; and to deprive the animal of a sufficient drink is about the worst species of cruelty that can be inflicted upon the brute creation. The agony of excessive thirst is simply terrible.

The New York World says: "Potato water, or water in which potatoes have been boiled, is now recommended in various quarters as not only an effective but an immediate remedy for lice on cows and other cattle; also for ticks. The affected parts are bathed with the potato water; one application is generally sufficient. This remedy (if remedy it proves) has the merit of being exceedingly simply employed and without injury to the cattle."

Commissioner LeDuc in his report for the year 1879, claims that the loss to the farmers of the United States, at the present time, is from \$15,000,000 to \$20,000,000 annually, and that it is not unusual to receive intelligence from some of the large hog growing localities in the west that the losses in single counties will reach the large sum of from \$50,000 to \$80,000, and in some instances as high as \$150,000 in one season, through the devastating operations of hog cholera.

Dairy.**Suggestions Upon Haying.**

BY PROF. L. S. ARNOLD.

The time for securing the winter food for the dairy is at hand, and some thoughts in regard to it may be appropriate. Very much of the success of the future operations of the dairy will depend upon how that food is gathered. The first consideration is the condition of the food when cut. It should be neither too ripe nor too green. It requires judgment and skill and experience to determine the best time for cutting. So far as the quality of the hay is concerned, there is no danger of cutting too early. There is no better winter food for cows, whether in milk or not, than dried grass. The proper time for cutting hinges on the amount of growth and the changes which occur in the later stages. The more grass is matured the slower and more imperfect is its digestion. The greener it is, the more readily and completely it digests and the more drying it takes to cure it, which is a matter to be taken into consideration. But it does not pay to wait too long for the grass to ripen, so that it will cure quickly. When it gets so ripe as to dry easily it is always losing in value, though it may not be losing anything in weight. Hay makers are very apt to couple the idea of the greatest value with the greatest weight. This is a great mistake. When the time of greatest weight arrives the time of greatest value is past, and the crop is depreciating. The stems of the grass become hard and stiff with woody fibre, which is indigestible, and mineral matter is absorbed, which, though it adds to the weight, adds nothing to value, as it is of no use to the animals which consume the hay containing it. Experience and science concur in placing the greatest available nourishment at the time when the crop, whether clover or timothy or other long-leaved grasses, is in the middle stage of blossoming. As no one who has a large dairy to feed can cut all his hay at just the right moment, even if he always knew just when that moment occurred, it is best to begin soon enough to be half done when the best time for cutting arrives. It is better to be a little early rather than a little late.

The manner of curing is also important, as well as the time of cutting. Much of the good quality of the hay may be lost or saved by a little skill or thoughtfulness, or the want of them, while the mown grass is curing. Hay may be dried too much as well as not enough. It may be dried too fast as well as too slow; and serious losses may occur by exposing needlessly to dew and rain. The old adage, "Make hay while the sun shines," has led many a farmer astray in the management of his haying. It has led him to infer that the sooner he dries his hay the better, and that sunshine is the best means for doing it. But such an inference is not true, however convenient sunshine may be as a ready means of drying. When grass is cut in the best stage for making hay it contains a considerable amount of volatile oils which are essential to the value of the hay. It is upon these that the delicious aroma of new made hay depends. Their value consists in making the hay palatable to stock, and they furnish the most active and ready supporters of animal heat, and by acting as a gentle stimulant to the action of the stomach they aid materially in the digestion of whatever food they may be mingled with. When they are wanting in food it becomes insipid and difficult of digestion, if not loathsome.

The higher the heat to which these flavoring oils are exposed, the more volatile they become and the more they escape. Hay subjected to hot sunshine while drying—especially after the main part of the

water is out—loses its aroma very rapidly, as any one may know by smelling the strong odor given off while half-cured hay is drying under the rays of a hot sun. All the agreeable odor which thus flies away goes to depreciate the merits of the hay. To be best, hay should cure slowly and at as low a temperature as possible. It is much better cured in the shade than in the sunshine. This, however desirable, may not always be possible. It is sometimes necessary to hurry the curing at the expense of quality. But ordinarily hay can generally have most of its drying done without injury from the sun. By stirring well with the tedder the first part of the drying may be done by the sun without material injury. After that it may be raked and put into piles of a size to make 50 to 100 pounds of cured hay, according to the degree of dampness and the condition of the weather. Standing in this shape half-dried hay will soon cure without appreciable loss of its essential oils, with an occasional turning over of the bunches, or if the weather is catching, spreading for a short time and then re-bunching again. In the curing of hay it should always be a leading policy to have the moisture absorbed away by the atmosphere as much as possible, instead of being driven off by the direct heat of the sun.

Milk and Milking.

It is a common practice to give the animal a feed before beginning to milk, so as to make the cow quiet and contented. But is this a good plan? Should not this important and delicate operation, over which the cow has so much control, receive the undivided attention of the animal as well as of the milker? We think it should, and that feeding at this time is bad practice. It is a matter of habit, anyhow, and the cow may as well be taught to attend solely to the milking as to eat. Of course she must be quiet and contented; but this should result from general treatment, and not from a coaxing feed.

Here is a bag full of milk which we propose to draw. The cow is healthy; the milk must be a perfectly natural product, and we must keep it so. Partly right—but not so fast! Is it certain that the milk is all right now? By no means, for the milk may be affected while still in the udder. If the food has been bad the milk has suffered in quality; if the cow has had impure water to drink it has beyond doubt directly injured the milk; if she has suffered from thirst the milk will be less in quantity and in fats; if she has breathed foul air, whether in stable, yard, or pasture, it has affected the milk, perhaps made it unfit for use. Do not forget this: carrion in the pasture, offensive fish manure in an adjacent field, or any sickening odor, even if from a distance, may have a very injurious effect. So may emanations from a manure cellar, without the proper precautions of tight floors and ventilation. Pure air is as necessary to the making of good milk as pure water and pure food. If there has been insufficient shade in the pasture, and the animal has suffered from extreme heat, the milk will show it in a direct loss of the fat and sugar elements and an increase in undesirable albuminoids. It will be very poor milk. The same result follows worrying by a dog, fast driving from pasture, or any fright or harsh treatment. A rough, noisy cow-boy, or a worthless cur, may directly diminish the butter yield from one-third to one-half, by injury to the milk yet within the cow, and the milker may hardly notice it.—*Land and Home.*

Do not allow your milk pans to be used for all sorts of household uses. You cannot make sweet, fine butter if the milk is put into rusty old tins.

AVERAGE BUTTER PRODUCE.—Despite the very high butter produce of some cows reported from time to time, the average butter produce of the United States is much below what might be expected. Prof. Alwood, in referring to the exaggerations abroad in reference to the production of butter in the country, says in a communication to the Country Gentleman: "The average of Orange Co., N. Y., is only 186 pounds per cow! For the whole country, deplorable as the fact is, the average butter product cannot be over 125 pounds a year from each cow, and is more likely to be as low as 120 pounds. Seven millions of cows would then produce 840,000,000 pounds of butter annually." Does not Canada, as well as the States, need more careful selection of dairy stock?

Poultry.**Packing Eggs to Preserve for Winter.**

For this purpose there have been recommended several methods. We have had eggs well preserved for months by packing in salt. A box was put in a cool place in the cellar; a stone jar would answer as well. A layer of salt was put in the box, then a layer of eggs with the large ends downwards, the eggs not touching one another; then another layer of salt, and then eggs, and so on till the box was filled, the last layer being salt. Cover the box and let it stand undisturbed till needed for use. We have used eggs packed in this way for six or nine months, perfectly good for the table. The salt used must be perfectly dry; if at all damp it would penetrate the shell.

Another method of preserving eggs is the covering them in a jar filled with lime-water recently prepared, and keeping in a cool dry place. The lime-water is prepared from quicklime by putting it in a quantity of water greater than would cover the eggs. The lime-water thus prepared is allowed to stand several hours, and is then poured off for use. The alkali held in solution in the liquid closes the pores of the shell and prevents any fermentation of the eggs. This is said to be the most certain and lasting method for the preservation of eggs.

The French Method.—Dissolve four ounces of beeswax in eight ounces of warm olive oil. With this anoint the egg around with the finger. The oil will be absorbed by the shell, and the pores filled up by the wax. It is said that the eggs will by this method be as good in two years as if fresh laid. Eggs are sometimes anointed with butter or oil for the same purpose. This serves to close the pores.

Baked Bones and Oyster Shells.

We give to our readers an article, from the American Poultry Yard, that is in accordance with our own experience and recommend them to read it carefully:—

"I suppose I did my duty by my hens when I burnt bones to ivory whiteness, ground them to the consistency of flour, and fed them occasionally, with the idea that I was giving them egg-shells in a very available form. But I did not consider that the gelatine, the fat, the ammonia, and other constituents of the bones which were discharged by the internal heat (leaving only a little pure lime) were really the richest possible food for the hens, and the greatest egg producing diet that could be furnished them. My new tenant only bakes them, more or less brown, in an old tin plate on the top grate of the stove oven. This is not a very pleasant process; for, like all scorched portions of the animal frame, they give a pungent, half-suffocating smell, which tempts you to "clar de kitchen" till the fresh air from doors and windows has sent the objectionable odors into outer space. But you soon become reconciled to this invasion of ill scents when the fiery combs, the ceaseless cackle, the evident high health of your fowls, and the daily filled egg basket show you what they have accomplished.

"No other food, not any amount of food, if this is left out, will give you such returns; and this baked bone, pounded with a hammer on a rock in your poultry-pens and fed with ordinary feed, will give results that ought to satisfy the most craving disposition. The hens cluster around that primitive bone-mill, gulping down the rich morsels with evident delight; and since everything necessary for the production of eggs is thus fully furnished, there is no undue strain on the vital forces, no weakening of the system, but a daily attention to business to the complete satisfaction of the fowls and their owners.

"You can hardly give too much burned bones to your hens to provide the necessary amount of lime for the egg shells, and the next best thing for that purpose is oyster shells, which can be obtained by the barrel (and generally without any cost except taking away) at hotels or restaurants in your nearest city. My new tenant goes eighteen miles for them, and considers them cheap enough at that. The hens eat them when pounded in fragments as eagerly as they pick up the shelled corn, and they finish the needed material for the egg shell more completely than anything else.

Garden and Orchard.

The Grape-vine Flea Beetle.

J. D. Sharman, of this City, and others, have had serious damage done to their grape-vines by this insect. The grape-vine flea beetle, which has become a great pest in Canadian vineyards, is one of the most formidable enemies that the grape growers of the country have had to contend with. These beetles leave their winter quarters in April, and attack and destroy the young leaf-buds as soon as they appear; later they feed upon the leaves, which have escaped their earlier ravages, and deposit their eggs upon them. The larvæ also feed upon the leaves, and when they appear in great numbers sometimes strip the leaves of their foliage. After a month of active life the larvæ bury themselves beneath the surface of the ground, where they change to pupæ of a dirty yellow color. The adult beetles in the course of a few weeks again feed upon the leaves during the autumn, and later seek their winter quarters beneath the bark and splinters on the vines and the stakes which support them, as well as under any rubbish in the vineyard. Mr. Comstock, Entomologist of the U. S. Department of Agriculture, has tried the following experiment, as reported in the Scientific American, which worked in a most satisfactory manner:—Take two pieces of common cotton sheeting, each being two yards long and half as wide; fasten sticks across the ends of each piece to keep the cloth open, and then drench with kerosene. Give the sheets thus prepared to two persons, each having hold of the rods at opposite ends of the sheets. Then let these persons pass one sheet on either side of the vine, being careful to unite the cloth around the base of the vine; then let a person give the stake to which the vine is attached a sharp blow with a heavy stick. Such a blow will in nearly every case jar the beetles into the sheets, where the kerosene kills them almost instantly. In connection with the above, the remedies which have been often recommended should be used if necessary. They are as follows: First, all rubbish should be removed from the vineyard, and the stakes and trellises which support the vines be well cleaned of bark and splinters, so as to afford the beetles little chance for wintering in the vineyard. Second, if the larvæ appear in great numbers, lime should be sifted over the vines.

Remedy for Insect Pests.

Quassia water is, according to a correspondent of Nature, a protection to peach trees against insect blight. The first year the trees bore well and the new wood was elbow length or more. I next tried quassia in the vineyard. Instead of lime-washing the walls to get rid of the green fly, one watering with quassia dismissed them in a day. My head gardener, who had previously much experience in nursery grounds, wondered that he had never heard of it before. He now uses it in all cases as a protection from flies and blight. The dilution goes a long way: one pound of chips of quassia wood boiled and reboiled in other water until he has eight gallons of the extract for his garden engine. He finds it inadvisable to use it stronger for some plants. This boiling makes the quassia adhesive, and being principally applied to the under leaf, because most blight settles there, it is not readily washed off by rain. Quassia is used in medicine as a powerful tonic, and the chips are sold by chemists at from sixpence to a shilling a pound. The tree is indigenous to the West Indies and to South America.

And now as to gnats and mosquitoes. A young friend of mine, severely bitten by mosquitoes and unwilling to be seen so disfigured, sent for quassia chips and had boiling water poured upon them. At night, after washing, she dipped her hands into the quassia water and left it on to dry on her face. This was a perfect protection, and continued to be so whenever applied.

At the approach of winter, when flies and gnats get into houses and sometimes bite venomously, a grandchild of mine, eighteen months old, was thus attacked. I gave the nurse some of my weak solution of quassia to be left to dry on his face, and he was not bitten again. It is innocuous to children, and it may be a protection also against bed insects, which I have not had the opportunity of trying. When the solution of quassia is strong it is well known to be an active fly poison, and is mixed with sugar to attract flies, but this is not strong enough to kill at once. —Scientific American.

How to Euchre the Borers.

Ten years or more ago I tried the use of paper bands and gas tar, in various forms, on my peach trees, and when carefully applied it was effective in excluding borers, but for the past seven or eight years I have practiced a much more excellent way, and I know other fruit growers who have done the same, and would not think of going back to the old methods. It is simply using carbolic acid, which is the essence or spirit of gas tar, and is easily made to combine with water by adding soap, while the tar itself will not combine, and is far less safe and cleanly in its application. My rule for preventing borers is to get a pint of crude carbolic acid, costing 25 cents—and is sufficient for 20 gallons of the wash. Take a tight barrel and put in four or five gallons of soft soap, with as much hot water to thin it, then stir in the pint of carbolic acid, and let it stand over night, or longer to combine. Now add twelve gallons of rain-water and stir well; then apply to the base of the tree with a short broom or old paint brush, taking pains to wet inside of all crevices. This will prevent both peach and apple borers. It should be applied the latter part of June or early in July, in this climate, when the moth and beetles usually appear. The odor is so pungent and lasting that no eggs will be deposited where it has been applied, and the effect will continue till after the insects have done flying. If the crude acid cannot be obtained, one-third of the pure will answer, but it is more expensive. —[Cor. Fruit Recorder.

Insectivorous Birds.

No person, be he ever so sordid, but is in some way sensible to the charms of nature, and among the charms of country life the presence of birds, and the delights derived from their cheerful song, are among the most popular. Hardly any one would care to be without them, and yet the damage they sometimes do is so provoking that it is no wonder at times people grow out of patience with them. It is very hard in these cases to discuss the bird question properly, and thus we read in various "transactions" of the most contradictory opinions in regard to the value of birds. In some quarters people are praying for birds, and petition the legislatures for laws to protect and encourage them; on the other hand these people are regarded as mere sentimentalists, and "fire and brimstone" is voted as the true deserts of what the other regard as feathered pets.

The truth about birds lies midway between these two extremes. That they live for many months in the year on insects is clear of birds as a general thing. There are perhaps a few which live wholly on seeds and fruits, but none of these are among the birds which give our agriculturists and fruit growers so much trouble. If it were not for the myriads of insects which these birds destroy in that time, it would be perfectly useless to try to raise grain or fruits at all. Now, when we look at these facts the kind-hearted are very apt to decide that the poor things are entitled to some of the fruits which, without them, we could not have at all. But the trouble is that in many cases they take all the crop, and under these circumstances one is not apt to care much whether they eat insects for nine months or not.

In this conflict of facts the wise man is he who ignores none, but adapts things to circumstances. We must have birds, and they should be encouraged, and to have fruits we must guard them from birds who will take more than their share. Agricultural writers tell us that in Europe, where the birds are infinitely more numerous than they are here, they suffer very little from insects. The birds keep the noxious insects pretty well down, but when the grain-fields are sown, or the fruit about to ripen, boys are hired, who with clappers walk about the fields and keep the birds away. By thus spending a trifle for a few weeks they have no difficulty in having full crops in spite of the great number of feathered tribes. Our true policy must be a similar one, to encourage the birds and protect the crops. There is no other rational ground to take. —*German town Telegraph.*

It is said that the best way to manage sickly plants is to turn them out of the pots, shake or wash off all the soil from the roots, and if any are decayed cut them off; also prune the stem and branches severely, and pot again in fresh soil. Set them away in a shady place, after giving water sufficient to settle the soil, adding a little from time to time as returning health and growth appear.

Pear Blight.

I notice that you say that whitewash is the best thing you know of to keep off the fire blight from pear trees. That probably would do if you could reach every small twig; but unless you do that it would be entirely useless, for the blight is caused by a large, black fly, that feeds on the trees about the last of June. It would be too long for this letter to tell you how I discovered the true cause. I have been cultivating the pear for 15 years, and I have tried every remedy that I could hear of or think of, but to no use, until I notice some three years ago an article published in some agricultural paper that the blight was almost unknown on the Pacific and Atlantic sea coast, and it was supposed that the salt spray was the cause of the exemption. So, when I read that (I had already found the time when you wrote "look for the fly,") I went to the store and got a half bushel of the coarse common salt fish are packed in; I sowed it around my trees as far as the limbs extended, so thick that it looked as if a severe hail storm had just taken place. I used the salt about the 20th of June, and it required several weeks for it all to evaporate, and in the morning, after a heavy dew, all of the leaves and limbs would taste quite salty.

Since that I have had no blight, while in the next lot adjoining, and just across the street, they have plenty of it. Others that have tried my remedy have no difficulty with the blight. If I am correct, you see your whitewash would not do much good; but I think the carbolic acid would probably be as good as the salt, if the trees were thoroughly impregnated with the acid. —[E. P. L., in Fruit Recorder.

Salt for Trees and Vegetables.

I will give you a sketch of my experience with the use of salt in the garden and orchard. Young fruit trees can be made to grow and do well in places where old trees have died, by sowing a pint of salt on the earth where they are to stand. After trees are set I continue to sow a pint of salt around each tree every year.

In 1877 I had a garden forty feet square. It was necessary to water it nearly every day, and still the plants and flowers were very inferior in all respects. In 1878 I put half a barrel of brine and half a bushel of salt on the ground, and then turned it under. The consequence was that the plants were of extraordinary large size and the flowers of great beauty. It was not necessary to water the garden, which was greatly admired by all who saw it. The flowers were so large that they appeared to be of different varieties from those grown on land that was not salted.

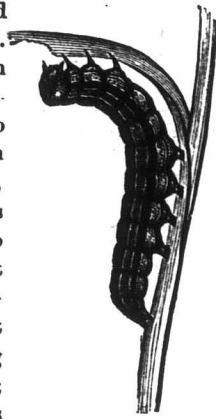
I had some potatoes growing from seed that wilted down as soon as the weather became very hot. I applied salt to the surface of the soil till it was white. The vines took a vigorous start, grew to the length of three feet, blossomed and produced tubers from the size of hens' eggs to that of goose eggs. My soil is chiefly sand, but I believe that salt is highly beneficial to clay. —Ex.

BLACK CURRANTS.—Is there a variety that does not bear fruit? In the last February number of the ADVOCATE our contributor "Hortus" wrote of a worthless variety of black currant that blossoms freely, yet bears no fruit. The accuracy of this assertion has been denied. Mr. Arnold, of Paris, says there is no variety of currant that does not bear fruit. On the contrary, Mr. J. L. Jarvis assures us that there does exist a variety which is not a fruit-bearer. He planted black currant bushes four years ago, and, though there was no failure in their growth, they have borne no fruit. When we take into consideration that currants commence bearing fruit at about two years of age, this testimony we must take as conclusive. They may certainly have existed, though Mr. Arnold has not met with them. Mr. Jarvis describes the unfruitful variety as a very rapid grower and throwing out a long string of blossoms, as "Hortus" had described them in his article.

THE BLACK KNOT ON PLUM TREES.—The N. Y. Sun says: The black warts or knots on plum trees are caused by a fungus, and they should be cut away as soon as discovered, and the trees stimulated to make a vigorous growth. A quart or two of salt scattered over the surface of the ground about each tree will be beneficial, and aid in checking the disease. This we know from our own experience to be the remedy. Cut off and burn the infected branches, and you will save your trees and fruit.

The Army Worm.

This dreaded foe to grass and small grains has lately been doing very considerable damage along parts of the sea coast from Virginia to Long Island. Accounts of its ravages are more particularly numerous in Delaware and on Long Island. Authorities on the subject believe it will make its appearance in more northern latitudes. This is one of the insects that, on account of wide-spread injuries at irregular intervals, and of its not being noticed by farmers during the intervening years, attracts more than usual attention, and, notwithstanding it has been written about by economic entomologists for many years, and especially since 1861, when the Americans had a wide-spread visitation of it. Various caterpillars that, from excessive multiplication, occasionally move from field to field in large bodies, have been popularly called army worms, but the term belongs to this insect, par excellence. Up to the year 1861 very little but that was inaccurate and confusing had been written about this insect, though occurring in millions as long ago as 1743; 1861 and 1873 were noted years of wide-spread injury.



Full-grown Army Worm

WHERE THE EGGS ARE LAID.

The favorite place to which the female consigns her eggs is along the inner base of the terminal blades of grasses, where such blades are yet double, and on both the green and dry blades. In fact the dry blades are preferred, and occasionally the eggs are thrust in between the sheath and stalk. The female, says Prof. Riley, having once commenced to lay, is extremely active and busy, especially during warm nights, and but two or three days are required to empty the ovaries, which have a uniform development. A string of fifteen or twenty eggs is placed in position in two or three minutes, and by the end of ten more, the moth will choose another leaf and supply it with a string too. The moth perishes within a day after having exhausted her supply of eggs. The egg is glistening white when first laid, and only becomes tarnished or faintly dull yellowish toward maturity.



Chrysalis of Army Worm.

HABITS OF THE WORM.

As Prof. Riley well observes, the fact cannot be too strongly impressed on the mind, that the travelling of the worms in large armies is abnormal. In sections where they abound they may be always found in the warm months of spring or early summer, by diligent search, in moist grass land that was not cut or grazed too closely the previous autumn. At these times they have essentially the habits of ordinary cut-worms, and are seldom noticed unless so abundant as to cut the grass entirely down and be obliged to travel to fresh pastures. Indeed, one may pass daily through a grass

plat where they abound, and never suspect their presence until the plat suddenly begins to look bare in patches.

The reasons why they so easily escape detection in this their normal condition is that, when less than half an inch long, the worms are scarcely recognizable as army worms, the characteristic dark, sinuous lines on the head being at this time obsolete, and the general color being pale green. The color is very variable at any stage of growth, and in some individuals brown predominates while they are yet quite small; but up to the last moult the green generally prevails and the longitudinal dark lines are less conspicuous. The broad stigmal line is the most persistent, being distinguished when the insect is one quarter inch long. The worms in this their normal condition feed mostly at night, and hide during the day at the base of the grass, or under any other shelter at hand. If they venture to mount a plant and feed during the day—which they often do in cloudy weather—they drop at the least disturbance, and curl up in a spiral so as to simulate very closely a small shell of the *Helix* form. The worm loves cool, moist places, and is more often found around the margins of creeks and ponds than elsewhere. Last year, when the rains were so copious as to fill creeks and bottom lands and float numbers of the worms away, I saw many a one cling tenaciously to grass blades and continue feeding as though little concerned, even when partly immersed.

It is only when hunger impels them that they march forth from the fields where they were born, though after they have once begun the wandering habit they often pass through fields without eating everything to the ground. Invariably when the older individuals are attracting attention by congregating and travelling in armies, others may be found of all sizes in the more normal and quiet condition in grass that is yet sufficiently rank; they may indeed be found some time after the first worms have changed into moths; and the mower with his scythe often startles the moths in numbers during the latter part of June, while yet the worms are clinging to the grass that he is cutting, or hiding in the stubble that he leaves.

When travelling the worm "will scarcely turn aside for anything but water, and even shallow water courses will not always check its progress, for the advance columns will often continue to rush headlong into the water until they have suf-

Though when hard pushed the worms will fall upon and devour each other, and will even feed upon some kind of vegetable, yet their attacks are mostly confined to the grasses and cereals, and their most natural food plants are the rank swamp grasses.

While in the more northern latitudes there is but one annual generation, there are at least two farther south. The insect hibernates in the perfect moth state, and is very frequently captured during mild weather of winter, especially in the Southern States. There is good reason to believe that it may exceptionally hibernate underground as a chrysalis. The worm has numerous natural enemies, which pursue it remorselessly whenever it becomes unusually numerous, so that it very rarely, if ever, appears in destructive numbers for two years in succession.

REMEDIES.

Experience has well established the fact that burning over a meadow, or prairie, or field of stop-

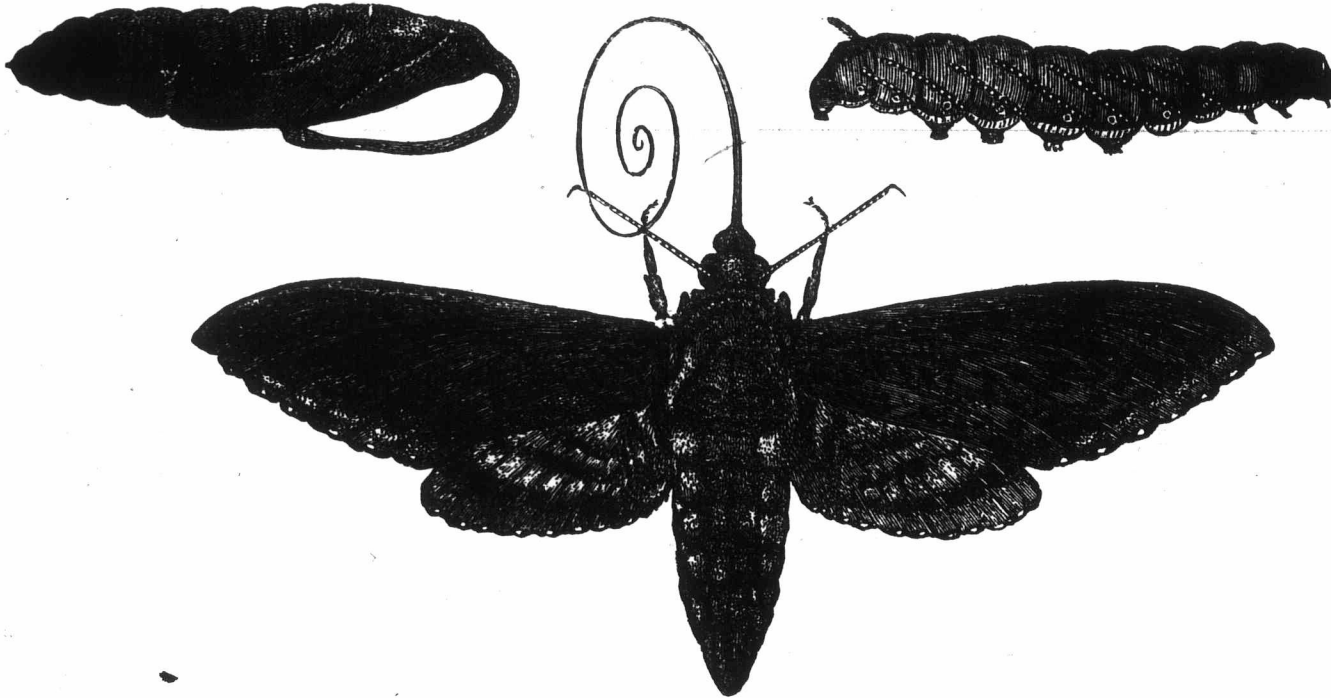


ARMY WORM MOTH.

pel, either in winter or spring, effectually prevents the worms from originating in such meadow or field. Such burning destroys the previous year's stalks and blades, and, as a consequence of what we have already stated, the moth which the female moth prefers. Burning as a preventative, however, loses much of its practical importance unless it is pursued annually, because of the irregularity in the appearance of the worm and the difficulty of anticipating its coming. Judicious ditching, *i. e.*, a ditch with the side toward the field to be protected perpendicular or sloping under, will protect a field from invasion from some other infested region when the worms are marching. When they are collected in the ditch they may be destroyed either by covering them up with earth that is pressed upon them, by burning straw over them, or by pouring a little coal oil in the ditch. A

simple plough furrow, six or eight inches deep, and kept friable by dragging brush in it, has also been known to head them off.

In ordinary seasons, when it is not excessively numerous, it is seldom noticed: First, because the moths are low, swift flyers, and nocturnal in habit; second, because the worms when young have protective coloring, and when mature hide during the day at the base of meadows. In



THE TOMATO WORM, MOTH AND CHRYSALIS. (See page 160.)

ficiently choked it up with their dead and dying bodies to enable the rear guard to cross safely over. I have noticed that after crossing a bare field or bare road, where they were subjected to the sun's rays, they would congregate in immense numbers under the first shade they reached. In one instance I recollect their collecting and covering the ground five or six deep all along the shady side of a fence for about a mile, while scarcely one was seen to cross on the sunny side of the same fence."

years of great abundance the worms are generally unnoticed during early life, and attract attention only when, from crowding too much on each other, or from having exhausted the food supply in the fields in which they hatched, they are forced, from necessity, to migrate to fresh pastures in great bodies. The earliest attain full growth and commence to travel in armies, to devastate fields, and to attract attention, about the time that winter wheat is in the milk, this period being two months later in the north than in the south; and they soon afterwards descend into the ground, and thus suddenly disappear, to issue again two or three weeks later as moths. The moths hibernate and

oviposit soon after vegetation starts in spring. The chrysalids may also hibernate, and probably do so to a large extent in the north. The worms abound in wet springs preceded by one or more very dry years. They are preyed upon by numerous enemies, which so effectually check their increase whenever they unusually abound, that the second brood, when it occurs, is seldom noticed; and two great army worm years have never followed each other, and are not likely to do so.—[Abridged from the Scientific American.]

Fuchsia (or Ladies' Eardrop).

There are at present over fifty varieties of these favorite plants, while the varieties produced by cultivators are almost innumerable, each year bringing along lists of "Novelties" in Fuchsias. With the exception of two found in New Zealand, the Fuchsia is a native of America, most of the species being natives of the Mexican and Brazilian mountains.

There are both double and single varieties, some of the petals being multiplied to such an extent as to render the flowers monstrous in size. The flowers are seen at their best when viewed from below. Fuchsias are admirable plants for summer decoration; the winter-blooming kinds are few, and disappointment often results from a want of knowledge of this fact. They are used to some extent for bedding purposes, but the heat of our summers is too severe on them. Their proper use is in the summer decoration of rooms and verandahs, though in a well shaded place they may be turned into the open border. When they have finished flowering the plants should be allowed to rest, and be kept in the cellar until February or March, when they may be brought into growth.

Fuchsias are propagated with the greatest ease from cuttings of the new shoots. A cutting an inch or two long, if properly treated, may be grown to a plant two feet high in a single season. We have known them to have lost all their leaves by frost, but if properly attended to, will shoot out again as good as ever. Fuchsias, as well as all other plants, must have proper attention by changing the soil when needed, watering, etc., to insure success.

The rose slug, so destructive in our rose bushes at this season of the year, may be destroyed by dusting the plants, while wet with dew, with air-slacked lime. Syringing the bushes with a strong solution of soap suds is also recommended.

Pot plants that become unthrifty and sickly, may be revived by planting them in rich mold in a sunny spot, after trimming, after the season becomes permanently warm. Thus they will often grow into a vigorous state during July and August, and be ready for re-potting. Oleanders, oranges, lemons, camellias, azaleas, among hard-wooded plants, may be made healthy in this way. They must, however, be protected from the effects of sweeping winds.

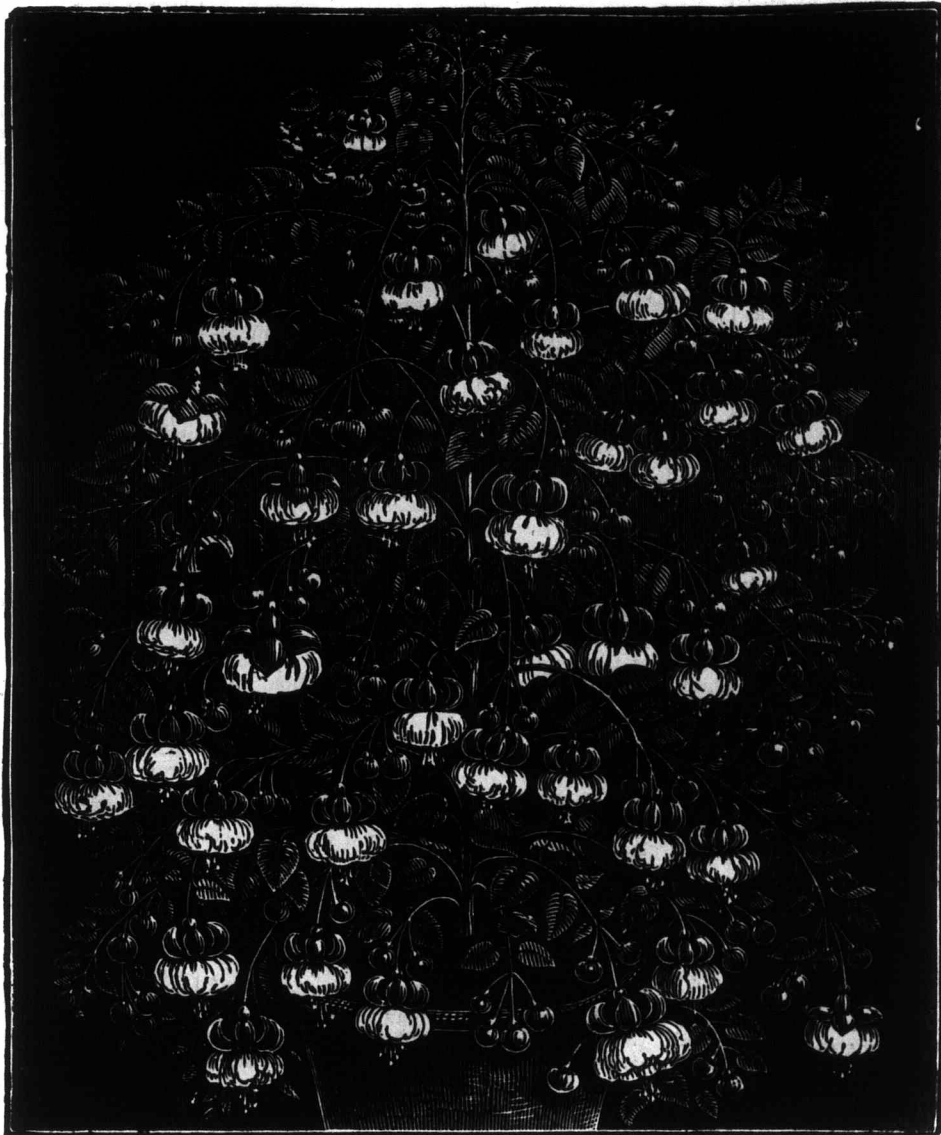
Screens and Pear Blight.

Some observations on the influence of evergreen screens in protecting pear trees from the effect of the blight, may afford additional hints in drawing general conclusions relative to the causes which bear on this disease. An orchard of standard pear trees, 15 years old, and containing about 300 trees, mostly Lawrence, was protected on the west side by a line of evergreens. From this side the prevailing winds blew, after sweeping over some miles of the water of Cayuga Lake. The screen was formed of Norway Spruce, 15 years old, the trees 15 feet apart, the branches beginning to meet and the trees averaging 25 feet high. They stood on each side of a farm road, constituting thus a double screen. The orchard extended away from them to the distance of 15 rods. The blight which prevailed to such a fatal degree some years since, was more destructive to these

retarding effect of the intense cold of winter in checking the subsequent season's growth, and sometimes trees which have been thus intensely frosted are several weeks later in opening their buds. Sharp and cutting winds, in the instance already referred to, doubtless somewhat enfeebled the trees, and made them more liable to blight. This fact indicates the value of the practice which some planters have adopted in situations much exposed to the sweep of winds, of planting evergreen trees distributed at regular distances through the whole orchard for the purpose of affording shelter from their range.—[Country Gentleman.]

Valuable Hints to Farmers.

For the last five years I have not lost a cucumber or melon vine or cabbage plant. Get a barrel with a few gallons of gas-tar in it; pour water on the tar; always have it ready when needed; and when the bugs appear, give them a liberal drink of the tar-water from a garden-sprinkler or otherwise, and if the rain washes it off and they return, repeat the dose. It will also destroy the Colorado potato beetle, and frighten the old potato bug worse than a thrashing with a brush. Five years ago this summer both kinds appeared on my late potatoes, and I watered with the tar-water. The next day all Colorados that had not been well protected from the sprinkling were dead; and the others, though their name is legion, were all gone. I am aware that many will look upon this with indifference, because it is so cheap and simple a remedy. Such should always feed both their own and their neighbor's bugs, as they frequently do.—[Ex.]



FUCHSIA (OR LADIES' EARDROP).

Lawrence trees than to any other part of the several additional acres of adjoining pear orchards. But the protecting influence of the evergreens was quite striking. The half of the first-mentioned orchard, farthest from the screen, was nearly all destroyed, not one tree in ten remaining; while most of those within a few rods of the evergreens remained, and are now in a vigorous condition. As the screen extended for 30 rods along the side of the orchard, the result was not accidental, for the sheltered trees escaped along the whole line. They bore abundantly last autumn, and those within four or five rods of the screen had finer and larger pears than such as grew on the remaining scattered trees away from protection.

The question may be asked, what influence did the evergreens have in preventing the blight? Simply this—that the sheltered trees not being exposed so much to the cold winter, made a stronger, more vigorous and more healthy growth, and the wood maturing more perfectly, was better able to resist the attacks of the disease. Horticulturists have often had occasion to observe the

"and as you stand off, looking over a lawn, you think of a boiling kettle of thick mush. They are coming up by millions and always make straight for the trees, which they climb by clinging to the bark with their claws." The principal damage done by them is the injury to fruit trees. They deposit their eggs by making longitudinal slits in the young branches or terminal twigs, which are thus killed and break off easily under the influence of the wind.

Besides thinning the fruit we should thin the young branches. Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton—but it is the summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than another. Equality must be insisted on. Pinch out always as soon as they appear such as would push too strongly ahead, and keep doing so until the new buds seem no stronger than the others,

SEVENTEEN-YEAR LOCUSTS.—The last appearance of these insects took place in 1863, and as a consequence they are due again this year. They do not infest the whole country, but particular sections only. The Chautauqua Farmer contains a letter from Zanesville, Ohio, describing their appearance there, and the Wheeling (Va.) Intelligencer also reports them as being found in several localities in that vicinity. The larvae bury themselves so deeply in the ground that it takes them 17 years to get back again. The Farmer reports them as having been found five feet below the surface the year before their appearance above ground. They swarm in vast numbers in the districts where they appear;

Agriculture.

Avonbank Farmer's Club.

At the meeting of the Dairymen's Association in London, Mr. H. S. Lossee, of Norwich, Ont., said: "At one time I raised from 2,000 to 3,000 bushels of turnips per acre. Now I do not raise any. My experience goes to prove that turnips impoverish the land, and you can never raise a good crop of anything else after growing them. I never could see any great merit in turnips." The Club holds a very different opinion, but opinions differ.

At a recent meeting of this Club, a paper was read by the Secretary, Mr. J. G. Jopling, on the subject selected for the evening's discussion:

"IS IT PROFITABLE TO RAISE TURNIPS?"

The following is a copy:

"I claim that it is profitable to raise turnips. Land is usually and should be selected that requires cleaning and extra tillage. All the arguments there are for a naked fallow are equally good here. The labor can be done after the hurry of seeding is past, and you have a favorable season to destroy seeds and any filth that may be in the soil. The one point that a fallow has over a turnip field is, while in the first case you check the thistle for a number of years, say seven to nine, in the turnip it will only check them for half that time. But to compensate, you have a crop of turnips. And a properly managed turnip field is put into an equally good state of cultivation for the succeeding crop as the fallow, so that there is nothing to actually charge in the expense of growing turnips except the mere putting in of the seed, thinning and saving the crop; and that will certainly pay when our six months' winters are taken into consideration under present circumstances, when many of our cattle have to depend on straw principally for fodder. They are very necessary to the general health of the animal, and give an appetite and relish, causing the cattle to eat their straw better. The change from grass to dry winter feed is an extreme one. If properly and economically managed, turnips should be either cut fine or pulped and mixed with cut straw. In this way fodder is made nearly equal to hay, and quite as good for the ordinary wintering of stock in our neighborhood. It is argued that there is no nutriment in a turnip—that they are nearly all water. Well, we will allow that they are, that 90 per cent. is water (I do not know the exact figures). But, sir, I assure you the cattle are quite willing to dispose of this 90 parts of water to get the nutriment contained in the other ten parts, and it is a cheaper and easier way of watering stock than pumping or digging through snow banks, as many do. Those of us fond of apples or other fruits in their season know the craving we have for them, whether a benefit or not; however, all authorities recommend and advise their liberal use. Cattle fed on turnips will thrive better and have better health, as all children have who are allowed a liberal quantity of fruit. And in addition to the actual benefit derived, their appetites require tempting at times. There are many who think a little whiskey improves the taste of water, and many of you no doubt have heard the story of the boarding-house tea. The landlady remarked to one of her boarders: 'You seem very fond of tea, sir?' 'Yes, I think so, when I am willing to drink fourteen cups of water to get a little!'

"The next argument is that we have nothing to take the place of turnips that does not cost double the money and labor. Corn will not do it, although it comes nearest in bulk; but it requires equally good land and as much tillage to grow a successful crop. True, the labor connected with thinning turnips is saved, but that gain is lost in the harvesting. Corn requires sowing in a busy season, during the time of fall wheat seeding. If neglected till after the fall frosts, it is useless as fodder, and the labor of saving an acre of corn is greater than an acre of turnips. Grain and hay will cost four times as much as a substitute. Mr. Thos. Steele, at our last meeting, in estimating the cost of raising cattle, put the cost of turnips at five cents a bushel. I consider that a fair estimate; they can be grown at that price quite as profitably as wheat at one dollar, oats at thirty, or peas at sixty cents. It is quite as easy to raise from 500 to 1,000 bushels of turnips to the acre as 40 to 60 bushels of oats or barley. Let any one doubting

the profit of growing turnips take three acres of turnips and three of oats. We will estimate the turnips very moderately, at 500 bushels per acre, making 1,500 bush.; the oats at 50 per acre, making 150 bush. Feed with straw the turnips at the rate of 10 bush. per day for the 150 days of our winter; and dole your oats out at 1 bush. a day through say 20 head of cattle, 1½ lbs. to an animal. I claim, sir, that 20 acres of hay and grain will not equal 3 acres of turnips in wintering a lot of cattle. Finally, are they hard on the land? I think not. A rapid growing plant like the turnip gets a great deal of sustenance from the air, and anything the leaves take from the soil is returned again in the shape of a valuable green manure when they are plowed under again, as they should be immediately after the crop is taken off. For the bulb itself, if composed, as it is said, of 90 parts of water, it cannot take much from the soil to feed it, and anything taken from the turnip plot goes back on to the farm again, improving all the straw and manure it is mixed with after leaving the stables, at least 25 per cent."

The remarks of Mr. Jopling were generally approved of by the members who spoke in the discussion afterwards. Some exception was taken to 500 bushels of turnips being an over-estimate for an ordinary crop, when it was shown, assisted by the figures of Mr. Wm. Teir, that 500 to 700 bushels was only a small average; and a number of examples and cases were cited where crops had yielded from 700 to 1,100 bushels per acre. A discussion arose on the space that the plants require; drills 30 inches apart and thinned to from 12 to 18 inches in the rows, found most favor. There was also a difference of opinion about the feeding qualities of the turnip and the amount of nutriment it contained, many claiming that there were more feeding properties than chemical analyses show. The President, in summing up on the question—"Is it profitable to raise turnips?" said he had taken a note of the different speakers; all had spoken in the affirmative but three, and of those two were doubtful, and but one opposed to growing turnips.

How to Restore Fertility to Exhausted Farms.

In an attempt to renovate soil it is neither necessary nor wise to rely on one method. The ordinary course of farming may be pursued; and by combining rest, green manuring, crop rotation, and tillage, as the circumstances of the farm and the farmer require, increasing fertility from year to year will be apparent. But while this process is going on, the farmer must, to sustain himself, sell some crop or crops. It is, therefore, important to know whether it will make any difference in his work of soil restoration what crop he sells. Does one crop remove more of the prime elements of fertility from the farm than another? All plants are composed of the same soil and animal materials, but the proportions in different classes vary considerably. The cucumber takes about 2 per cent. of its substance from the soil, clover 10, and tobacco 20. Some store up large quantities of nitrogen; in others the proportion is small. Some are rich in phosphoric acids; others take comparatively little. The elements more generally deficient in soils, and which are the most difficult and costly to supply, are potash, nitrogen, and phosphoric acids; the farmer should carefully select for sale those crops which contain the smallest proportional quantity of those elements; and the demands of his market may possibly be such that they will yield the greatest money return. A ton of timothy hay is worth in market a third more than a ton of clover; but for feed and manurial purposes on the farm a ton of the latter is worth nearly as much as two tons of the former. Sell timothy, but retain and feed clover and those fine grasses known by the general name of English hay. As compared with the root crops, the grains are rich in nitrogen and phosphoric acid. Therefore sell roots and retain grain. This rule is equally true when applied to animals and animal products. Milk is very rich in nitrogen and phosphate of lime; butter is nearly all carbon. Sell butter, but feed milk, and return its rich elements to the soil which produced them. Animals grown upon the farm are a soil product, made up of its choice elements, exactly the same as plants, and when removed to market deplete it. Mature animals brought to the farm and fattened in barn or pasture, and then exported, carry away the same substance as butter, and leave the soil as fertile as they found it.—[L. S. in Land and Home.

Careless Farming.

Not only is necessity the mother of invention, but also of providence and thrift. Waste not, want not, is a good maxim and one which the American farmer does not very generally heed. He may not waste time or money or valuable material, but he certainly wastes magnificent opportunities. There is an inertia in human nature that makes us feel that what we never had we never lost, and so we proceed, year in and year out, reaping only half of what opportunity has sown for us. Careless farming is the trait which a foreigner most observes in this country. A failure to raise all or even a small fractional part of what the soil is capable of yielding is a fault of wide prevalence. If a man by imperfect breaking, or slovenly sowing, or insufficient weeding, raises only half what his ground is capable of producing, how much better off is he than if he spent half his time in idleness? Indeed in one sense he is worse off, for personal idleness may be limited to personal consequences, whereas the unused resources of the country remain as a blot on the national character and tend to produce and ingrain habits of shiftlessness and sloth. A man is seldom better than his surroundings. Philosophers show us that organic nature has a wonderful aptitude for conforming its character to that of the environment. Hence careless habits are not alone vicious for the direct loss they entail, but likewise for the positive injury they inflict on the community, since they are as insidious as malaria, and as hard to eradicate as the Canada thistle.

By contrast with Canadian farmers European husbandmen are models. Not a spot of ground is wasted, not an ounce that the ground is capable of yielding that is not laboriously and patiently drawn out, and not a measure of replenishing the soil is neglected. Imagine an American farmer planting the angles of the fields at corners which the plow can not reach! But such is done in Europe, and more soil is carried from below and plastered on the ledges of the hills to form a spot of tillage. The manure heap in such countries becomes an object of tender concern. In answer to the question why we do not do so here, it may be sufficient to use the slang phrase, "We do not have to," and this may be satisfactory while there is plenty of land, but those who live long enough to grow up with the country will discover when the latter has reached a respectable stature that "many a little make a muckle" and that trifles make perfection, but perfection is no trifle.—Ex.

Good Wholesome Harvest Drink.

As alcoholic drinks have happily long been driven from the harvest fields, there have been various drinks besides water substituted, but scarcely any of them meeting full the conditions sought for in the way of a wholesome, satisfying beverage. Water, even in all its purity, does not seem to quench the thirst and stimulate the body, as it produces additional perspiration and passes through the pores almost like passing through a colander, leaving the system exhausted and weak; besides, a drink of cold water, when suffering under a great degree of heat, is dangerous, even at times producing sudden death. Lately in England and elsewhere a drink is prepared by mixing oatmeal with water, in the proportion of three or four ounces to a gallon of water. This is found not only to satisfy the thirst better than water, or molasses and water, even when tempered with vinegar or other acid, but to produce additional strength of body. Oatmeal possesses peculiar aroma and is a stimulant to the surface of the skin so as to cause the complete digestion of the liquid. Men employed in an atmosphere of the intensest heat are much comforted with it, and become very fond of it. Hence it is in a measure "victuals and drink," possessing only virtues and without any drawbacks whatever.—Ex.

THE AMERICAN CLIMATE CHANGED.—C. M. C., in Land and Water, writes as follows: Since my early youth this climate has changed. The clearing away of the forests gives unimpeded sweep to northern winds; the leaves do not so long absorb and retain the fallen rains; and the treading of the surface by stock, all make the summer drier. There were then 100 springs where there is one now. The rills or creeks are gone or soon dry up, and scientific culture has to ward off the effects of drouth. If shallow plowing in the first breaking is made, the rush of the surface water more than ever sweeps the soil. What remains is shallow, and soon the harsh winds and sun penetrate the roots, and the crop is injured.

Grazing Mowing Lands.

It is no uncommon thing for farmers to remark, "somehow or other my mowing does not hold out very well; it is only a few years since I stocked it but I do not get much of a crop." Now what is the trouble? Nature has a mode of recuperation; and while the plants that grow obtain much from the atmosphere, if left to themselves they would return it to the soil, thus enriching it; but in the case of grass it is either cut for hay or grazed by cattle. Now after a crop of hay has been cut, and aftermath too, if large, a field may perhaps be fed a little without any severe injury, but to turn in cattle and allow them to gnaw to the very roots of the grass until the ground is frozen in the fall and again in the spring, is robbing the soil because it takes not only the sustenance which comes from decay, but it also deprives it of that which clothes her, or in other words, protects her during the cold months of winter.

There is nothing gained but much lost by attempting to be too saving. Unless a crop of aftermath is so heavy as to be likely to bed down and so rot the roots of the grass, it is questionable whether it is advisable to cut it, or feed it to any great extent. On the contrary, unless observation is greatly at fault, there is an advantage gained by omitting to feed very extensively. Fields that have been so situated in consequence of growing crops that they could not be fed have been noticed to maintain a good crop of grass from year to year, and even to increase it, while those which have been continually fed as soon almost as the hay crop was removed have deteriorated very rapidly. With butter high or where an increased production of milk was desired the temptation to feed is strong and no doubt gets the better of sound judgment, but in the end works an injury.

If a farm under ordinary cultivation is all the time running down in its production of hay with no other assignable cause than that of having its mowing lots closely grazed, does it not appear to be about time to abandon such a suicidal policy and adopt some other course? And yet there are farms that can be pointed out that do not cut as much hay as, they did ten years ago the cause of which can be traceable to fall and spring feeding. Far better would it be, even to plow up some of the old pastures in which the sod is getting weak, sow on some bone or phosphate and re-seed.

Comparative Value of Manures.

Prof. Voelcker, of England, in analyzing these, reports poultry manure, fresh, as containing about two per cent. of ammonia; dried, a little over four per cent.; Peruvian guano from the Chincha Islands (all exhausted several years ago) used to yield 16 to 18 per cent., but that latterly obtained from other Peruvian islands only gives from three to eight per cent. of ammonia. The latter is richer in phosphate of lime than the former, containing as high as 40 per cent. Pigeon dung is richer than that of poultry when both are fresh, in consequence of more moisture and silicious matter being found in the latter. Soot undiluted contains three and a-half to four per cent. of ammonia.

Many persons have heretofore thought chicken manure as rich as Peruvian guano from the Chincha Islands used to be; but from Prof. Voelcker's analysis above, they will see that it is only from one-eighth to one-ninth of that, and about half as rich as the poorest quality now obtained from Peru.

The American Entomologist, in an article upon the imported carpet-beetle, which is attracting so much attention, recommends the planting of spiræas as a trap for the adults. The beetles collect upon the blossoms to feed on their pollen, and may then be captured.

FEEDING WILTED FODDER.—Impaction of the rumen, with bloating, often follows the feeding of a large quantity of green fodder. When partly wilted and with very succulent forage, as alfalfa clover or green corn fodder, the danger is increased, as partial fermentation has already begun and is greatly quickened by the warmth and solid packing in the stomach. Such fodder should be given often and in small quantities and with abundant drink. Those who soil their cows are careful, or should be, in this respect, and give such feed at least four times a day, and not more than twenty pounds at one time. It is safe also to scatter a small quantity of salt upon the forage.

Destroying Weeds.

To carry on an intelligent warfare against noxious weeds it is necessary to know somewhat of their method of propagation. White daisies, iron-weed and other pests which spread from both root and seed ought to be dug out of the ground previous to the maturity of their blossoms, in order to destroy the seed crop for that year as well as the germ which produces the stem and blossom the next. This is accomplished with greatest ease directly after a rain, when the ground is soft. When enemies of this character have multiplied themselves to such an extent as to render digging out impracticable, the only remedy left is to plough up the infested ground before the seed matures.

Burdocks which spring up quickly after having been mown above ground will soon succumb, provided the cutting is done a few inches below the surface. Elders and briars that thrive persistently in neglected places are in time destroyed by mowing down, twice a year, during May and August. Ploughing up the land and harrowing out the roots is an effective mode, especially when the ground is afterward planted with some such crop as corn.

Milkweed may be exterminated by constant cuttings. Plaintain will die out if not permitted to ripen its seed for two years. That most troublesome of plants, Canada thistle, can be conquered by choking and smoothing it with some crop which overtops it and deprives its leaves of sufficient light and air. Rye has been sown on thistle-infested fields with good results, especially when it was followed with clover and timothy. The mowings the thistles receive when the grass is cut assist in enfeebling their growth. May and August are the best months in which to mow weeds that die from loss of foliage.

There is much to be said both for and against summer fallow for the destruction of weeds. A fallow certainly reduces the pests, but so long as stock feed on weeds the land will again be seeded with them when manure is applied. Therefore the time never arrives when a farm is free from noxious growths of one kind or another which call for more or less fighting against them. The warfare, as has been intimated, must vary in kind with the nature and growth of the weeds and be unceasing. With constant culture, generous fertilization and the employment of clean seed, it is hardly possible for any weed, however tenacious of life, to gain possession of one's fields.—Ex.

THE DECAY OF WOODWORK OUT OF DOORS.—The decay of wood embedded in the earth is difficult to guard against; but, according to the Farmer's Gazette (Dublin), a simple precaution will increase the durability of posts put in the ground by fifty per cent. This is simply by taking care that the wood is inverted—i. e., placed in the opposite direction to that in which it grew. Experiments have proved that oak posts put in the ground in the same position as that in which they grew, top upwards, were rotten in twelve years, while their neighbors, cut from the same tree, and placed top downwards in the soil, showed no signs of decay for several years afterwards. The theory is that the capillary tubes in the tree are so adjusted as to oppose the rising of moisture when the wood is inverted.

KEROSENE IN THE POULTRY-YARD.—Kerosene oil judiciously applied is a valuable article in the poultry-house. Perches washed with it occasionally will remain free from vermin; it is also effective in the cleaning of nest boxes. It appears, however, that there is a wrong as well as a right way of employing this pungent substance. According to the Poultry World kerosene should be applied beneath the nests and upon the wood only. It is too strong and penetrating to be placed where it will come in direct contact with the eggs that are being set on or to touch the bodies of the fowls. Therefore where it is carelessly or too profusely scattered, so that the hen sits upon it or her eggs are touched with the liquid, it does more harm than good, often penetrating the shells and destroying the embryo chicks. According to the authority referred to, if the eggs are smeared with kerosene oil at any period, either when first laid or while being set, their vitality is as surely destroyed as it would be if the shells were punctured or crushed.

The gooseberry worms may be destroyed by sprinkling them with very strong soap suds. Take common lye soap, make suds as strong as you can, throw it on the worms in the heat of the day, and in a short time they will drop to the ground. The suds have not been found to injure the bushes.

Improving Poor Land.

"How can these old fields be made to produce abundant harvests at a cost that will enable the crops to pay a fair interest on the investment and a fair investment for the labor?" This question, put by the New England Homestead, is a very important one for Canadian farmers as well as others. Land has been neglected, and, worse still, exhausted by repeated cropping with scourging crops, till the average of our wheat production has been lowered to eighteen bushels, some of them to so low a yield as to be actual loss to the farmer. There was some excuse for the system of over-cropping when the farmer had to rely entirely upon the wheat market; but now, with good markets for meat and wool, butter and cheese, there exists no longer a plea for an uninterrupted succession of grain crops till the soil is thoroughly exhausted.

The farmer who would restore to impoverished lands their former productiveness, must feed sheep and fatten cattle on his land. But that land is so impoverished that live stock would starve on it. Let him, then, sow buckwheat, oats, rye and clover, not to sell the grain grown, but for soiling and to plow them under crop after crop till there is again a vegetable mould within the soil that will pay him a remuneration for his labor. This is the work of time; it is, however, the acquiring of a new farm that will yield as heavy crops as the old farm did in the clearing. Wheat as the only market crop will not bring as high a price now that the British markets are sure of an abundant supply from every point of the compass; but there is a profit from the shambles and the dairy, if you supply none but best quality.

A Word for Moles.

The mole is often destructive in cultivated lands, but the damage is more than balanced, as they are insectivorous, the mole's chief food being white grubs and other underground insects, which are so injurious to agriculture. From good authority we learn that they never molest the roots of plants when the necessary insect food can be procured. It is true plants sometimes die where moles have been at work, and on inspection we find that the roots have been eaten and immediately blame the mole, when in truth it was the white grub which did the mischief and in search of which the mole came. The same may be said of the toad, which is often destroyed. This animal is believed to live exclusively on insects and their larvae.

SMOOTHING LAWNS.—A smooth surface to lawns has several advantages, among which is the ease in running the lawn mower, the handsome surface, and the more even growth of the grass. If well made in the first place, they will possess all these advantages at once; but there are many that are uneven and rough. They may be gradually made perfect by top-dressing with sand or road dust. While in a rapidly growing state these applications should be made rather thin; late in autumn or early in spring, two or three inches or more may be spread, and the grass will find its way up through them. Depressions are thus gradually brought up to the general level. If the road dust contains small stones, it is easily screened with a coarse sieve.—Ex.

WHEN TO CUT WHEAT.—There is a right time to cut wheat, and it is as soon as the grain has passed from the milky to the doughy state. It will then not shrivel nor lose weight, the grains will not be rough and harsh, nor the bran brittle. At this period the bran is thin and most elastic, can be best separated, and will leave the largest proportion of white flour. From this time until it becomes over-ripe, the bran will continue to thicken and become more brittle, and as the bran thickens and increases in weight, the yield of flour will decrease in the same ratio. Wheat cut in its doughy state must not be left lay in the hot sun to dry suddenly, but should be bound and shocked at once, and if capped all the better, so as to cure as slowly as possible. Early cutting has the advantage of less loss by shelling in the field, the straw will be brighter and more valuable for feed, and the sheaves will pack in much less space than when cut after being fully ripe.—Weekly Press.

One of the best methods of keeping up the fertility of cow pastures is to give the cows extra food during the pasturing season. This extra food will be repaid in extra milk every week, and so enrich the droppings as to fully compensate the pasture for all the grazing.

Stock.

Convenient Set of Box Stalls.

With this month's issue we present to our readers a very convenient plan for a set of box stalls with yards, which is a very necessary attachment to all farms, and especially to one where fine stock is bred. Many of our breeders simply keep their surplus bulls or young stallions either tied up in an ordinary stall or kept in a box stall without any yard, which is certainly injurious to the animal. They are always improved by free recourse to the open air, with a suitable amount of exposure. While many of our readers are breeders of fine stock to a greater or less degree, still some are not, and may never keep a male animal on their premises; yet this plan is equally useful to them. Cows or mares which are due to drop their offspring in the winter or early spring should not be tied up, but should be kept loose in large box stalls for some time before, and generally for some time after, giving birth. Especially is this the case with mares. At such times the box stalls with yards will prove very servicable, as they will at times when you may have weakly or sick animals, which are always better removed from the others.

The four stalls which are represented by A may be of any dimensions you desire—12x12 is a good size for ordinary purposes, though for some uses we would prefer them larger. The height of stall from floor to ceiling should be from 8 to 10 feet. They are, as seen, entirely surrounded by their yards, which are also divided, and are represented by G G and E E respectively. The water tubs, KK, are partly sunk in the ground, and are supplied with water from the cistern by a pipe which runs under ground, laid so as to connect with the pump spout, if you have no running water. One pipe will be sufficient for both tubs by setting one slightly lower than the other, and letting a pipe run between them across the alley-way P, a little below ground. Two tubs will be sufficient for the four apartments by so running the partitions that half of the surface of a tub will be in each stall. There should be a sliding door over the feeding box in each stall, as represented by II in the engraving; thus you can give all feed from the alley-way P. This latter passage should be 4 feet wide, and arranged as in plan. The stables throughout should be built very strongly. The building may be one or two stories as desired. We would prefer it two, as the hay and other feed necessary for the stock fed below could be kept in the second floor, and, if desired, the lower story may be of stone, with frame-work above. The partitions between the stalls should be very strong, and all doors should open into the alley-way or yard, not from one pen to the other. The yards should be surrounded by a high, close board fence, the stringers of which should be put on the inside of the posts, and the boards nailed securely, facing inwards, or bulls or entire horses will knock them off. The fence that divides the separate yards should be double, that is, stringers and boards on each side of the posts. The doors leading from the pens to the yard should have convenient hinges, so that when the door is required to be left open, as in the summer time, they may be

taken off and set to one side, or a bull will be almost certain to smash them. The other doors leading from the alley-way to the pens should be made very strong and secured by a bar of iron running somewhat diagonally across the door, fastened by a strong staple or bolt on one side, and on the other by a suitable fixing to fasten it at will. If the pens are thus arranged through, an entire horse or bull can be kept in each stall without fear of accident. A stable of this kind should be built on a dry place. We prefer to have the floors either of clay, covered with gravel, or paved with large stones. The pens should always be kept clean and well ventilated. The water tubs will require special attention, and never should be allowed to become filthy; they will require daily attention in summer.

On Feeding Swine.

Professor Stewart, in his article, refers to some experiments made by a committee of two farmers' clubs in Connecticut, and also incidentally alludes to experiments in pig feeding made by me at Rothamsted.

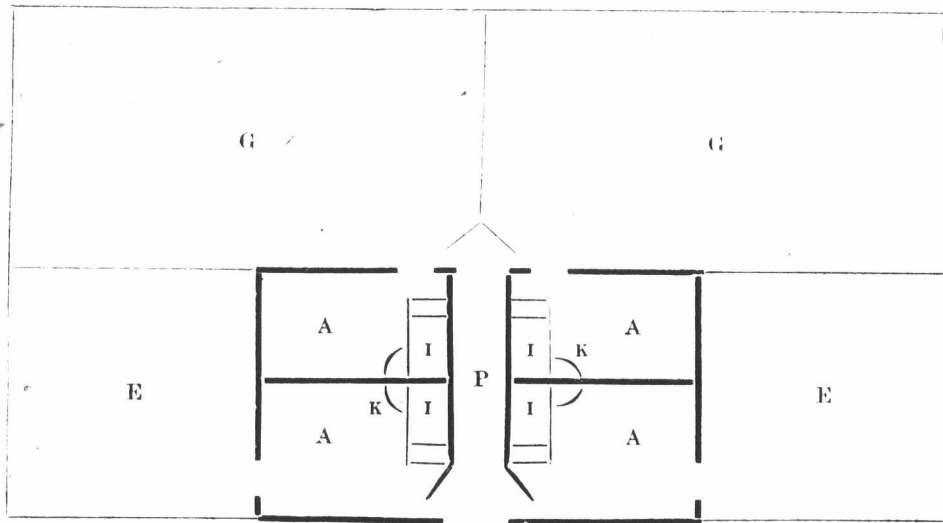
The committee obtained an increase of 1 lb. of weight by the consumption of 4.34 lb. of corn meal, and my results show an increase of 1 lb. by

and corn, or linseed cake, and it will be observed the pig, with his small stomach, can consume double the amount of food and increase nearly six times as fast as the ox. It is evident that these two animals are adapted to consume different sorts of food; the ox gets nourishment out of bulky diet, such as hay, straw, &c., while the pig thrives on a concentrated diet, consisting principally of starch. When a pig increases 1 lb. for each 4.34 lb. of corn meal consumed, as was the case in the Connecticut experiments, it is evident such food must contain very little indigestible matter, for it requires 2½ lb. of starch to produce 1 lb. of fat; and as a very large proportion of a fattening pig consists of fat, the amount of residue required to support the vital functions of the animal is not very great.

The practical conclusion that we arrived at from our experiments was, that the most suitable diet for a fattening pig was barley meal, or food of a very similar composition. Compared with corn meal, barley meal may be said to contain 2.60 per cent. of mineral matter, instead of 1.6 per cent., the quantity found in corn meal. It also contains a very small additional proportion of nitrogen, and a little more indigestible woody fibre. Some of the pigs fed exclusively on corn meal became unhealthy, and we thought the smaller amount of mineral, or indigestible matter contained by the corn meal, might possibly be the cause. Barley meal, which is the principal fattening food used in Great Britain, is certainly a perfectly healthful food.—[J. B. Lawes, in Agricultural Gazette (Eng.)]

Early Maturity.

When the production of lambs, mutton and wool is carried on under a regular system, and the breeding ewes are reared by an experienced breeder, whether they be of a fixed type—such as the Southdown, Shropshire Down, Cotswold, Leicester, etc., or a cross of one of these upon grade Merinos, or a mixture of common blood—the breeder knows that the best care and feeding for a few generations will greatly influence their early maturity, and consequently the profit to be derived from them. There is probably no animal more plastic in the hands of a skillful feeder than the sheep. By the cross of a thoro'-bred male upon selected common ewes, and the best of feeding, even the first generation will show a decided change in the period of maturity, making a larger growth, and showing a fuller development in 12 months than the dams had shown in 18 months. The next cross will show an almost equal improvement on the first. And here time is the great element of success. As we have seen in the growth of animals, if the gain in weight can be doubled in a given time, the cost is not doubled, for, after the food of support, all the extra food digested and assimilated is laid up in increase. If it requires two-thirds of an ordinary ration to support the animal without gain, and if a certain ration would increase the weight of a sheep 1½ lbs. per week, then if one-third addition to this ration was equally well digested and assimilated, the sheep would gain three pounds per week—a saving of two-thirds of the cost in the increase growth. Then, to double the growth in a given time reduces the cost of the whole growth one-third, and this one-third gain in profit is a good margin. Let us illustrate this in the growth of early lambs. Under scanty feeding—that is, the ewe being insufficiently fed to yield a good flow of milk—the lamb would make a slow growth of about 1½ lbs. per week, and would weigh about 21 lbs. at three months old. If, on the other hand, the ewe is a fair milker, and is fed one-third extra food adapted to produce milk, the extra milk will double the weight of the lamb, reaching 40 lbs. at three months. The significance of this double growth is not measured by doubling the value of the lamb, however; for the 40-lb. lamb often brings, in April and May, \$10 in our best markets, while the 20-lb. lamb would scarcely bring \$3. Doubling the weight often trebles the value, or more. The yearling wether that weighs 150 lbs. will sell for more than double the price of the one that weighs 80 to 100 lbs.; so that the more



PLAN OF BOX STALLS.

the consumption of 4.90 lb. of the same food. Professor Stewart finds fault with the prevailing idea that pigs thrive on the most concentrated food, which he characterises as "perhaps the error leading to the most disastrous consequences."

Professor Stewart is quite mistaken in stating that the Rothamsted experiments were conducted wholly with concentrated food—amongst many other kinds of food, we made use of bran, for instance, which the Professor says is an excellent food to mix with corn-meal; and I give the results of two experiments—one with corn-meal alone, and the other with 2 lb. of corn-meal per day to each pig, with bran *ad libitum* in addition.

It took 491 lb. of corn-meal to produce 100 lb. of increase in live weight; and it took 405 lb. of corn-meal, and 496 lb. of bran to produce the amount of increase.

The pig is a remarkable animal: nothing comes amiss to him, from a baby in a cradle to green food, or any refuse matter; he has, however, a very small stomach, and, if required to fatten quickly, must be furnished with a very concentrated food. This may be illustrated by the two following tables, published by me many years ago.—

	Proportion of stomach in 100 lb. live weight.	Per 100 lb. live weight. Dry substance consumed as food.	Per week increase.
Oxen	51	12½	1.13
Sheep	39	16	1.76
Pigs	14	27	6.43
Man	6		

In this table the animals are supposed to be fed with the most appropriate food—the pigs on corn or barley meal, the oxen or sheep on roots, hay

rapid growth means not only one-third less cost, but double the value. This is a decided encouragement both ways for good feeding. Early maturity, that is, the even, healthy, rapid development of the young animal is the great thing to be striven for in sheep feeding, as in every other department of feeding which is to fit animals for human food. This holds good in both the vegetable and animal world. It is the tender, juicy, crisp radish and asparagus that tempt the appetite, and these must be grown rapidly to reach this degree of excellence. It is also the tender, juicy, high-flavored meat that fills our desires for that food; and this, like the vegetable, must be grown or matured rapidly. This matter of early maturity is of the highest consideration in any system of profitable meat production.—[National Live-Stock Journal.]

[The above system of feeding we have advocated for a long time; farmers will find it as profitable in all other domestic animals as in sheep. We have sometimes known lambs of the improved breeds of sheep to weigh 90 lbs. at 3 months under judicious handling. The care of lambs was treated fully in our May number.]

The Coming Steer.

At the last meeting of the Iowa Fine-stock Breeders' Association, held at Des Moines, Hon. C. F. Clarkson read an essay entitled "The Coming Steer," which attracted earnest attention at the time, and which has been much talked of in breeding circles since. It is abridged in the Live Stock Journal, from which we again abridge:

The most reliable source of independence to the farmer is in the full development of the steer in the least possible number of months.

The small and ill-formed breeds which are considered superior for butter and cheese, cannot produce the calf which will command \$12 as a veal at six weeks, nor a smooth steer which will weigh 1600 lbs. at two years. The calves of the popular butter cow are worth nothing, except the females to raise for other cows for the same purpose. Those who are able, and want the cow for a small quantity of the best milk at any cost, and can slaughter the calves at birth, the Jersey or Ayrshire are just what they want. But the milk for supplying the towns and cities, for the private dairies, or for the co-operative butter and cheese factories, must come from the farm. Here the amount of milk must not be the only nor the most important consideration. Depending upon one source of income, or playing upon one string, was long since exploded as an unsafe policy. The farm stock must be so selected and combined that it will produce the most milk and best beefes; and they must be combined in one animal. Separate animals for special purposes cannot be tolerated on the farm; neither must there be any mixing of breeds, except in grading up the common stock. The coming steer must be from as pure beef-raising stock as possible, while he should be richly related to the best milk-producing families of his breed. But the farmer has no use for the small or ungainly-shaped milkers, except he intends to make that breed a speciality for furnishing towns and cities with the quiet little domestic pet just suited for such purposes. There she is of inestimable value—docile, easily kept, and converting nearly all her food into the richest milk. And here let me say distinctly, so that I shall not be misunderstood, the Jersey cow is the highest type of the butter cow. But here her superlative excellence must rest, and she as well as her owners must be counted to wear this laurel alone.

But the country must be careful not to have too many of them.

The coming steers must necessarily be of a superior class, but they must also be very numerous. This cannot be attained if our dairies and cheese factory farms are stocked with cows fitted only to give milk. The qualities must be combined as far as wise breeding can effect that purpose, and, in making out the programme, the coming steer must be the major object. The farmer, instead of studying whether he had better get a few Jerseys or Ayrshires to aid in the dairy department of his farm, had better employ his time in studying the history of such families of the Short-horns as are distinguished for their milking qualities and beef producing capacities.

In this, however, we are talking to the practical farmers who cannot aspire to the fancy Short-horns which are reported to be great milkers. Most of the families of Short-horns are not celebrated for their prominent milking qualities. For generations

the productions of the dairy have been considered small matters, and breeders mainly lost sight of that desirable quality in the cow. The prominent and unrivaled qualities of the Short-horn for beef induced breeders to partially neglect so prominent a point. The dazzling glories of its form, size, readiness to accumulate flesh, and for its docility, obscured one of its most important merits.

Now, however, the butter, dairy, and cheese factory have suddenly assumed an importance second only to beef. The latter, however, is still the overshadowing consideration. Circumstances have now brought into importance every possible quality of the cow. She must be superior for butter, cheese, and beef. And should these three factors continue to hold their prominent position on the farm, the wise breeder will look to the importance of the development of the much-neglected virtues of the Short-horn cow.

This subject is being treated only for and especially in the interest of the farmers. Looking upon the encroachments upon the farm by any other cow than that one which will produce the best stock for beef, and which will herself, when her time comes, make the best beef, it is important that this matter should be plainly presented now and here, without regard to the interests of any one to the contrary.

Give us first the cow which will produce the best agent in farm profit—the coming steer—and then add to her by selection and breeding that next important virtue, the milker, but never losing sight of the first.

I would not be understood as standing by the common cow as she is. But the large, thrifty, and good milkers of the common stock are just the foundation on which to build, with a thoroughbred Short-horn bull of some of the best milking families. But at the same time the beef qualities must not be overlooked. They must be stocky, good feeders, constitutionally inclined to fat and flesh, capable and inclined to partake largely of food, with a corresponding virtue of large assimilation.

The coming steer must be provided for. The profits of the farm and prosperity of the country demand that our cows shall produce as many high-grade steers as possible. This class of steers cannot profitably be bought elsewhere, and it pays to feed none others.

There is no doubt of the character of the real coming steer. The intelligence of our practical agriculturists will settle this question. But they are not numerous enough now, and never will be. The demand for such will never be supplied. This plea is, therefore, that his living statuary may ornament every farm, and add beauty to the landscape on every hill and in every vale of Canada.

Prepotency of Males.

Males do not influence the number of the young, the female having all the power, but a male being a twin or a triplet will sire a daughter or daughters which will breed twins or triplets, and this I know from experience. I had an uncle who commenced breeding sheep to bring twins, and used the rams which were twins, and afterward had those which were one in a triplet. He did not find any increase in the number of twins from the rams thus bred, but when the ewe lambs came round to be mothers they bred twins in great abundance. The result was just the same with the rams which were one of three at a birth.

About 40 years ago I bred a great number of pigs, winning a great many prizes at agricultural fairs I bred from near kindred—brothers and sisters, &c., till the litters became so few in number that I was obliged to obtain a boar of fresh blood, but he did not get many pigs in a litter; in fact there were more sows that had only one and two at a time, than before; but when the sow pigs came to breed they had good litters. I recollect that a sow which was the only pig her mother had at one farrowing, brought twelve pigs at the first time, and raised eleven of them. She afterwards raised twelve and thirteen sometimes. These are facts which determine the number at a birth.

Every male conveys the qualities of his dam to his daughters, because they follow their sire's mother in their ability to produce young. I experienced the same result from using a twin bull, for, although he never sired twins, two thirds of his daughters brought them. This was not on a small scale, for during the three years I used him he left more than a hundred daughters, which were raised for dairy purposes. It is conceded that a well-bred bull of pure blood has far more influence on the shape and general make up of his progeny than grade dams have.—[G. G. in Country Gentleman.]



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. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers' Manuscript," leave open, and postage will be only 1c. per ½ ounce. We do not hold ourselves responsible for the views of correspondents.

Buckwheat.

SIR,—Will you give me some instructions concerning the cultivation of buckwheat—how much seed to sow to the acre, what kind of land does it do best on, and which is the best variety, the black or the silver hull?

G. B., Cedardale, Ont.

[There are few products grown upon the farm that are more profitable than buckwheat. The labor of cultivating and harvesting the crop is less than is required for almost any other, while it will grow on poorer soil than almost any other; yet its utility is admitted by all. No one despises buckwheat griddle cakes on a cold morning in winter. Ground with corn and oats, it is a very desirable feed for pigs. For poultry it is one of the best grains for producing eggs. As a plant for bees it is only equalled by white clover. Buckwheat requires a light, warm soil, mellow and not over rich, or it will run too much to straw. It is an excellent crop for green manuring; in this respect it is only surpassed by clover. It might be turned under in season to sow winter wheat, rye, or for seeding down. The time for sowing is from the first to the fifteenth of July, at the rate of about a bushel to the acre, and a good yield will be about twenty-five bushels to the acre, but it not unfrequently falls as low as fifteen. The straw makes good bedding, and though it is claimed to be good fodder, cattle will not eat it unless it is steamed and a little meal added. Few farmers having the means of steaming, the feeding properties of the straw will be of little value. There are two varieties, the black and the silver hull. The latter is preferable for flour, as it is much whiter than the black kind, which will be preferred where the grain is required for feeding purposes.—Ex.]

Celery.

SIR,—Can you tell me how to cultivate celery most profitably? A. S., Peterborough, Ont.

[No vegetable is becoming more popular than celery, the demand for which is continually on the increase, and the announcement that it is an antidote for nervous diseases has increased its consumption to no small extent. Those who intend to raise but a little for their own use, can buy plants cheaper than they can raise them. Land that was heavily manured in the spring, and a naturally rich soil, is best adapted to the growth of this plant. A few years ago it was thought necessary to dig trenches in which to plant it; this is now condemned by some good authorities on the subject, but still it requires a deep tillage. Some recommend to plant on the level, others to plow a furrow and plant in the bottom. The rows should be from 4 to 5 ft. apart, and the plants separated about 10 inches in the rows. The plants may be set out from the 15th of June to 20th of July, and may be used as a second crop on ground where early vegetables have been removed. After the planting is completed nothing farther is to be done for six or seven weeks, except running through between the rows with a cultivator or hoe, and keeping free from weeds. This will bring us to about the middle of August, when we begin to "earth it up" by banking the soil up around the plants to keep them as compact as possible and prevent the branches from spreading. The more and oftener they are banked up the better, but be careful not to cover the centre of the bud; if this is covered the plant will be smothered.]

The May Bug.

SIR,—I would like to get some information about the May Bug or Cockchafer. Since about the 26th of last month, every evening when a window of a room where there is a light is open, they swarm in, and so thickly that we have filled a large wash hand-basin with them in about an hour's time. Where do they keep themselves during the day, and are they as destructive in the present state as when grubs or large white worms in the ground? I have heard that they remained buried in the ground for three years as grubs, and two years ago the potatoes on this farm were all badly eaten by those white worms, which were very numerous all over garden, orchard and fields. I suppose the present plague is from these worms.

R. G. F., Magog, Q.

[The May Bug or Cockchafer (*Lachnosterna quercina*) is sometimes very abundant and destructive in both larval and perfect states; but the greatest injury is done during the long period of two or three years while they are in the larval or grub stage, when they devour the roots of various crops and are especially injurious to the strawberry, and also to grass and sometimes to grain crops. During the day time the beetles remain in a torpid state, hanging by means of their sharp claws to the under side of the leaves of the trees and shrubs on which they feed. They are active during the evening and night, flying about in all directions, and devour the foliage of trees and shrubs. Where they are very abundant they can sometimes be destroyed to advantage in the day time by jarring or shaking the trees and shrubs to which they have attached themselves, and collecting them as they fall.]

Soil for Strawberries.

SIR,—I am about laying off a portion of ground for a strawberry garden, and I can have on my farm a choice of soil, light or heavy. I would feel obliged by your informing me in your paper what kind of soil is the most suitable.

YOUNG FARMER, Brockville, Ont.

[A sufficient moisture is the prime requisite of this berry, and yet it must not be excessive. Hence the best soil for a strawberry garden is a deep sandy loam, moist, but not wet—in its natural state. But people cannot always choose their soil. More often they are obliged to take what they have, and make what they can of it. The next best soil is heavy clay, thoroughly underdrained with tile and prepared by plowing under two crops of buckwheat in the same season, just as it comes into blossom. The poorest soil of all is sandy ground, as it will not retain moisture and manure. Still, by a proper mode of treatment, it can be made to give good returns, although after three years it should be given another year of buckwheat and clover, adding bone dust, potash and a very little lime in some form.]

SIR,—I have an apple tree which for over twenty years has borne only every other year. Last year it did not bear quite as full as usual, but did very well. It is now (the non-bearing year) as full as it ever was of blossoms. What can it mean? Will it bear fruit this season according to its present promise?

A. C. T., Oswego.

[The bearing year of the apple, in ordinary culture, only takes place every other year, owing to the fact that the fruit during the bearing year attracts a large quantity of the ascending sap of the tree in the same manner as do the leaves, but instead of returning to the tree it is appropriated by the fruit to its own growth. The consequence is the buds that would have blossomed the following year if they had received their due share of nutriment, fail in attaining the proper condition and produce only rosettes of leaves. During the unfruitful season immense quantities of fruit buds are again brought forward, and the year following the tree is overloaded, so it proceeds in regular alternation. The removal of the whole or a portion of the blossom buds or fruits, either by picking off or falling off from any cause on the bearing year, will induce fruit the non-bearing season for reasons that are obvious, especially if the soil be in a high condition. The fact that your tree bore only moderately last year accounts for the blossoms this season. Whether they will perfect fruit or not depends upon whether the amount of nutriment is sufficient to perfectly develop it. There will be a better chance for perfect fruit if the crop is thinned out, leaving only a reasonable amount that will not greatly exhaust the tree.—Ex.]

Heaves.

SIR,—One of my horses has taken the heaves very bad. Can you tell me how to cure it, and what causes it? J. D. J., Mouth of Keswick, York Co., N. B.

[Prof. Law, in his *Veterinary Adviser*, says:—Over-feeding on clover hay, stanfoil, lucerne and allied plants—on chaff, cut straw and other bulky and unnutritious food; in countries where there is no long winter feeding on hay, and in sections where clover is not used, heaves are virtually unknown. It advances just in proportion as clover hay is introduced as the general fodder for horses, and it disappears in localities where clover hay has ceased to be fed. The worst conditions are when the horse is left in the stable for a length of time, eating clover hay, or even imperfectly cured, dusty hay of other kinds, to the extent of 30 lbs. or upward daily, and is suddenly taken out to drive at a rapid pace. Violent exercise of any kind, and disease of the lungs, are also potent causes, and though mainly a disease of old horses, it may attack the colt of two years old. Finally, horses with small chests are most liable, and thus this disease proves hereditary. The treatment, as prescribed by our veterinary, is as follows: Place a couple of stones of unslaked lime in a tub or barrel of water, and put a quart or two of lime water in each pailful of water he drinks; also dampen his hay and oats with lime water. Shake all the dust out of his hay; he would be better on grass. Do not allow him to fill the stomach with either hay or water, especially before a drive. Give him drachm doses of Tartarised antimony at night in feed, and in morning give drachm doses of pulverized digitalis.]

Selection of Milch Cows.

SIR,—I wish to make dairying a specialty, but have not had much experience with milch cows. Can you lay down any rules to guide me in the selection of the best milkers?

B. A., Newcastle.

[The following answer we extract from an article in the *N. Y. Times*:—"To select a good milch cow, we should in the first place, look to the breed. A long line of good milkers almost guarantees a continuance of milk-production in the progeny. Old-fogy farmers may ridicule thorough breeding as much as they please—the stubborn fact remains the same that like produces like, and the more frequently the likeness has been reproduced the more thorough-bred is the animal. Not that we should advise every young farmer to start with a herd of thoroughbreds. If he simply wishes cows for dairy purposes, the grades do as well as full-bloods, sometimes better, and they can be bought at half the price. Precisely what the best breed is depends upon the question for what the milk is wanted. If for butter, there is no question that the Jersey is the best herd. Five to eight quarts of Jersey milk will make a pound of butter, whereas it requires nearly twice this amount of milk from the average native cow. It is not essential, however, that the butter be made from thorough-bred cows. The Simon Pure article is a little too oily for most palates. It looks yellow, hard and nice, but the expert butter-taster will generally give the preference to that made from grades. If cheese is the objective point, then the Ayrshire or Dutch cow is wanted. The latter is the larger animal, and gives the most milk, said to be rich in casein. Dutch cheese has a great reputation in Europe, but the Dutch cow—more frequently but improperly called Holstein—has not established a reputation in this country equal to that of the Ayrshire. Many farmers fear that these large cattle, accustomed to the rich pastures of Holland, will deteriorate on the neglected grazing lands of this country. Time will soon determine this point, and also the virtues of their milk, for their importation is rapidly increasing in America. The fanciers of this herd claim that it combines milk and beef production in one animal in an eminent degree, virtues hitherto considered antagonistic. There is no doubt about the quality of Ayrshire milk. It is good for butter, good for cheese, and better for bringing children up on than the Jersey, the latter being too rich in cream for the latter purpose. Ayrshire is just the milk to sell in cities and villages, as the cow gives a large quantity for her size, and the quality is such as to adapt it for family use. It is one thing to select the breed, and quite another thing to select particularly good specimens. It is on this point, we suppose, an inquirer specially desires instruction. It is here that the eye and hand of the expert are needed. Most

uninitiated purchasers are attracted by symmetry of form, rather than by the evidences of being good milkers. The Jersey, judged from this point of view, would rank as an inferior animal. The signs of a good milch cow are many, and we should rely, not upon one, two or three of them, but upon the largest combination we can find in any one animal. The first we should regard would be a large, well-developed udder, or bag, as farmers call it. This is the gland in which the milk is secreted, and must be large and well hung to hold and sustain a large amount of milk. Many persons are deceived as to the size of the udder by seeing it hang low. We like to see an udder broad and moderately deep in the rear, and extending far under the belly, with the teats well spread, of good size, and with the ends about on a level. With the hind teats extending two or three inches below the forward ones, we do not expect a good milker, though the udder may look large from behind; but with a bag hung long and broad, and with the teats set as above described, we have never known a cow to fail of filling a milk-pail. To make a correct judgment of the udder, a flank as well as rear view must be taken, and always give the preference to one that extends far forward and has large milk-veins. Next to the udder, which indicates the quantity rather than the quality of milk, we should examine the skin, hair, ears and horns. If the hair is soft, and the skin soft, flexible and yellow, the milk will probably be rich. This may be further determined by looking into the ears. If these are translucent and of the color of beeswax, it is a sign of good, creamy milk, and the waxy appearance of the horns also indicates the same thing. The Jerseys uniformly possess soft hair, and flexible skin of a yellow tinge, which is specially manifest in their ears. Thin skins are so supple and yellow that they appear to have been soaked in cream. We cannot dwell on the other signs of a good milch cow, such as a small head, slender neck, straight back, fine, clean legs, small bones and muscles, etc."]

The Aylesbury Duck.

SIR,—Will you describe a pure-bred Aylesbury duck, and would you allow a top-knot?

J. S. McC., Orono, Ont.

[The pure-bred bird has plumage of unspotted whiteness, a pale flesh-colored bill (not yellow), a dark and prominent eye, and orange legs. They are large, and should average when grown at least ten to twelve pounds per pair, but when well fattened the drakes have been known to weigh from eight to ten pounds each. They are very hardy, prolific layers and good mothers; the young birds grow very rapidly. The carriage of the Aylesbury is more erect than many other varieties. They should not have crests, and would not have, if pure. Sometimes their bills become disfigured with black spots, especially as they become old; this has been strongly commented on, but no definite conclusion arrived at, and many are disposed to regard it as hereditary. All should be careful not to confound the Aylesbury with other white ducks bred in this country, such as the Pekin, which has a yellow bill, or the White Poland, which is crested. There is also a common variety of white duck which is considerably smaller and like the Pekin; it has a yellow bill.]

SIR,—In my orchard there are numbers of trees completely undermined by ants building their hills around the roots, and making the trees loose in the earth. Can you inform me of any remedy?

A. S. C., Guelph, Ont.

[Sprinkle coal oil plentifully on their nests, and repeat it occasionally; it will soon destroy or drive them away. Care must be taken not to saturate the ground too deeply, or you will kill the tree.]

Swelled Glands.

SIR,—I have a colt two years old that swells very badly from its glands to its under lip when out grazing, but at nights when in the stable the swelling disappears. Can you tell me the cause and a remedy for it? H. S. M., Bridgewater, N. S.

[You must keep the horse in the stable and feed with his head high up, that is, from an elevated manger. Give him daily drachm doses of sulphate of iron in bran mash. Feed principally on green food. Dress the glands once every third day with tincture of iodine; apply with a small brush.]

Dairy Management of Calves.

SIR,—I wish to learn what is the best plan to push a calf forward on skim-milk, and also on whey, when that is all the refuse you have of the milk. Some of us dairymen require very particular instructions to understand things. We have been so much in the habit of thinking that we must have new milk to raise a good calf, that the refuse of the dairy is only considered fit for hogs. We want to raise good calves, and not such sorry-looking things as are often seen.

CONSTANT READER.

SKIM-MILK AND FLAXSEED.

The milk of the dam is Nature's food for developing the young calf. But this is very expensive food—often worth more than the calf—so we advise the dairymen to take the cream, which is the most valuable marketable element of the milk for butter making, and then restore the oil in a cheaper form for the use of the calf. The value of the cream for feeding to calves may be restored to the milk for less than one-sixth the value of the butter. From fresh cows, in spring, it often takes 30 lbs. of milk for one pound of butter. The oil in this milk is found in about two pounds of flaxseed; but since the flaxseed has other important elements than oil, being very rich in muscle-forming and bone-building elements, one and a half pounds of flaxseed will fully restore the value of the cream, and this will cost, in most places, about 4 cents, while the best butter is worth more than six times that amount. There is probably no other oil so easily obtainable that is so well adapted to take the place of the cream. We know from practical experience in raising many calves, that flaxseed boiled to jelly and mixed with skim-milk makes a food second only to new milk. We have had some good eaters and digesters that gained an average of three pounds per day for 25 days in succession; but so great a growth is somewhat exceptional, unless upon grade Short-horn calves; but with thrifty common-stock calves, full fed, two and a half pounds per day may be an average.

Calves, at seven days old, may be partially weaned from whole milk, and one-half skim-milk substituted for one week, when the new milk may be wholly withdrawn. When the skim-milk is first mixed in, it should have one table-spoonful of boiled flaxseed in it; this amount being gradually increased till you get one-half pound of flaxseed to ten pounds of skim-milk, and this proportion is sufficient, giving the calf all it can properly digest and assimilate. This will not be too laxative; but the bowels of the calf will keep in as good condition as on whole milk, unless the milk is allowed to become too sour. Many allow milk to become so sour as to enter upon putrefactive fermentation—this is bad for the butter, as well as for the calves. When flaxseed is not easily obtained, feed one-half pound of linseed-oil meal, steeped in boiling water, with two gallons of skim-milk. If any other food is desired, mix also half a pound of fine middlings with the oil-meal. Fine calves may be raised by either method.

There is too much water in whey; but if we add one-third of a pound of oil-meal, dissolved in hot whey, to each gallon of whey, we shall reduce the water, and give it the very elements that it lacks. After the calf is three weeks old, stir, also, four ounces of wheat middlings into each gallon of whey; this will make the whey a good calf food. Calves fed in this way judiciously, with full rations, will make a good growth. Care must be taken that the whey is fed shortly after being drawn from the curd, and not allowed to get very sour. Sour whey soon eats itself up, and becomes unfit for food. The whey-vat at the factories should be reformed—kept sweet, or abolished—and the whey put into cans for each patron. Good calves may be grown with whey, and these other foods added. Even middlings and whey will make good calves.—Ex.

Is phosphate valuable as a fertilizer? For what crops is it beneficial?

AN ENQUIRER.

[Phosphate is a rich fertilizer, not only for wheat on strong clay land, but also for crops in general on all worn-out land, whether clay or sand. It is a strong and enduring fertilizer, good for all crops, whether grass or grain, correcting the acidity of some, restoring the wasted elements of fertility of other lands, a means of heat to the soil, and causing an earlier growth and a better quality of produce, whether grain or roots. It is especially valuable for grape vines and fruit trees. It is one, and not the least profitable, of the minerals abundant in our own country, more highly valued in foreign lands than our own.]

Cut Worms.

SIR,—In this vicinity a black grub, in size from one-half inch to two inches in length, is devastating our corn fields. We find from 40 to 250 in a single hill of corn. They not only destroy corn, but all kinds of vegetables. Can you inform me how to destroy them?

R. M. E., Fenwick,
Welland Co., Ont.

[The black grub referred to has been very numerous and destructive in many parts of our Province this season. It is one of the grubs known as Cut Worms, the larva of one or more species of our dark brown night-flying moths or millers, belonging to the Noctuids. Fresh air-slacked lime has been recommended strewed about where they resort, and we believe has been used with some success. These grubs are now about full grown, and before this reaches our readers a large proportion of them will have gone into chrysalis in the ground. Early in July the moths appear, and later on deposit their eggs on low-growing plants or on the ground, where they hatch, and when they have attained a growth of about half an inch or more they cease feeding and become torpid, and so remain during the winter, feeding up and attaining full size the following spring.]

Guinea Fowls.

SIR,—Please let me know how long guinea fowls' eggs take to hatch.

W. W. C., Stratford, Ont.

[The period of incubation is from 26 to 28 days. We glean from some of our exchanges that the guinea fowl is a great exterminator of the potato bug. They are said to devour them with great relish, one fowl being considered enough to protect an acre of potatoes. Furthermore they will keep all bugs and insects off the garden vines. They do not scratch as other fowls, but are found not to injure in the least the garden plants. The great objection to the guinea fowl is their incessant screaming, and some people make this their main plea for keeping them, supposing that by their presence the barnyard is protected from hawks. But such is not the case. Hawks pay little or no attention to them, except that they sometimes covet them for a meal. Guineas are good layers of a small-sized egg, which are better set under small hens, as the guineas are so wild and shy they do not bear cooping very well, and if you let them out they lead their young about so much they are apt to lose the half of them. As a table fowl, though small, they are of a very fine flavor.]

SIR,—Is a man who hires with a farmer for a year entitled to either the 24th of May or the 1st of July, and is he exempt from all work on Sundays during six months of the year?

AN IMMIGRANT.

[Without special agreement was made to allow certain holidays none are legally allowed and none can be taken without the master's permission. A servant must, also, perform such work as is necessary on each and every Sunday, but a master could not compel a servant to perform regular field work. The above applies to servants who are hired for a year or similar period of time, but a man who is only hired for a month or two in summer as a harvest hand cannot be compelled by law to do any work on the Sunday.

In many places there is also a dispute concerning the number of hours per day farm hands are required to work, some maintaining the hours are from 7 a. m. to 6 p. m., allowing from 12 to 1 for dinner, but such is not necessarily the case. The working hours on a farm are governed altogether by the customs of the vicinity, and may be from sunrise to sunset, or otherwise, as is customary.

While we willingly give the law in all such cases, we think it much to be regretted that master and man cannot so agreeably accomplish their respective duties that such disagreeable misunderstandings will not arise. As seen above, a master can compel his hired man to forego all holidays, etc., but no man who really has his own interests at heart, and wisdom enough to be a good manager, will so act. A holiday refreshes the men, and they will take much more interest in a master's work who allows them a day for pleasure now and then. Everything will work more harmoniously when a master is kind and considerate. Speaking from a financial point of view, such a course is much more successful. On the other hand it is a servant's duty always to be obliging and respectful, fulfilling their duty to the best of their ability whether their master is present or absent, and always obeying his bidding so long as it does not conflict with a higher law.]

Dairy Utensils.

SIR,—I am always troubled in the warm weather by my butter sticking to the churn and other wooden implements which are used in its making; so tenacious is it that I have to scrape all the utensils, churn and dasher included, with a knife. The butter comes quickly and looks nice. What can be the cause of the trouble.

A. S., Brooklin, N. S.

[The whole difficulty arises in not thoroughly understanding the management of your utensils. To the casual observer the abundant washing, rinsing, &c., that dairy utensils receive, only give the idea of cleanliness, but though cleanliness is an indispensable necessity, something more is wanted. All wooden utensils must have their surfaces, at least, thoroughly water-soaked, or else the butter, if only a little soft, will stick to the wood. Before being used, all the utensils which will come in contact with the butter should be washed with soap and water (some believe the use of soda or borax in the place of soap is preferable). When washed as above, rinse in scalding water, when the articles may be allowed to dry, but must be dipped into cold water before using. Wooden articles must be at once put to soak in pure cold spring water for at least half an hour before the cream is put into the churn, the other utensils lying in water still longer. If this is done thoroughly every time, the wooden articles will not get grease soaked, but if they are neglected grease will get into the pores of the wood, and they will need the most thorough scrubbing with soap or borax.]

SIR,—1. When is the best time for sowing salt on fall wheat, in the spring or fall; and what quantity per acre—soil sandy loam? Is it any benefit against the Hessian fly, as it is working very bad in many places in this section now? It was said through the ADVOCATE that they did not work in the spring, but they are worse now than ever. 2. Does not the mulching of young apple trees give the borer a better chance to work and lay their eggs? 3. Do they work into the heart of the tree, or only into the sap under the bark? Should the earth be kept away, and the roots kept close to the surface of the ground? 4. Is salt a benefit to young trees? 5. Should rye or any green crop turned under now be plowed again before seeding, should the top of the ground only be worked and cultivated for the seed bed for fall wheat? 6. Is buckwheat of any benefit, or is it of too sour a nature for sandy loam to turn under for wheat?

A. S., Malade.

[We answer your questions briefly seriatim—1. Some farmers apply salt to fall wheat as soon as the plants are a couple of inches in height, but our opinion is decidedly in favor of applying it in spring. The quantity used is 200 pounds to the acre. We have had no experience of salt being a preventive of the Hessian fly, but it is said by some to be of service for such a purpose. 2. Mulching would have the effect you describe if placed close around the tree. This should never be done. It should cover the roots at some distance from the trunk. 3. Borers work into the sap, and on to the heart of the tree. Heaping earth over the roots and around the trunk is injurious to the tree. 4. We have had no experience of salt on young trees. We know brine is beneficial, and a writer on salt says:—"The salt keeps away insects that injure the roots and renders the soil more capable of sustaining plant growth." 5. Land, after having a green top turned, should before being sowed with fall wheat, be cultivated, not ploughed. 6. Buckwheat is beneficial as a fertilizer when grown even on light land, and plowed under. When decomposed it forms vegetable mould, of which light lands are so soon exhausted by cropping.]

In what number of the ADVOCATE have we stated that the Hessian fly does not work in the wheat plant in spring?

AN EXPERIMENT WITH COMFREY.—Mr. W., of Port Burwell, tells us his prickly comfrey promises to give a very heavy yield of green food this season. He bought one pound of the tubers, and cut them into over one hundred sets as directed; but only twenty grew. This partial failure he attributes partly to planting too early, when the ground was still cold; and partly to his cutting the tubers into too small sets. Some of the sets he planted in a frame covered with glass, and they entirely rotted. Its value as a forage plant he has yet to try, but in the continuance of his experiment this year he will ascertain its feeding properties. He is, so far, well pleased with its productiveness from the twenty growing plants. We hope to have a report of other similar experiments.

The Apiary.

Preparation of Honey for the Market.

BY CHAS. F. DODD, NILE, ONT.

Within the past few years many improved methods and appliances have been invented for the increased production of honey, as well as to vastly enrich the quality of this product. Simultaneous with these improvements we find the consequent increased consumption. Heretofore it was a luxury enjoyed only by a few, but it will ere long again take its place among the staple articles in general use. Improvement in the management and culture, as well as increased production, will bring the price down to that which can be afforded by every family.

Considerable confusion has resulted from consumers thinking "extracted" and "strained" honey the same thing. The former is obtained by the frames being uncapped and placed into a basket or frame-holder, which being attached to a single rod, is placed into a large can and revolved; the centrifugal force throwing out the honey from the combs, it runs down the sides of the can and is drawn off and placed in jars or some other desirable receptacle. Extracted honey is the pure liquid, minus the comb, the combs being returned to the bees to be re-filled with honey.

Strained honey is another thing—the result of hanging up combs used in the breeding apartment of the hive, the honey being mixed with pieces of comb containing bee-bread, dead bees, etc., and catching what passes through the cloth. That is strained honey, and is quite different from the pure, virgin honey extracted as above described, though still having the flavor of the bloom from which it came. The strained honey of commerce is generally adulterated—that which will not granulate. Consumers help to impose upon themselves by the false idea that pure honey will not granulate. They desire ungranulated honey, and dealers will attempt to supply the demand. Almost all pure honey will granulate when exposed for some time to light and cold; the granulated state is one evidence of purity. Much of the jar honey heretofore sold in the markets, and recommended not to granulate, is a very inferior article, composed largely of that vile trash called *glucose*. Granulated honey can be reduced to its liquid state in a few moments by placing the jar in warm water.

The honey crop of 1879 was reckoned a light one, although it has been estimated at 25,000,000 pounds.

Alfalfa gives smaller crops than red clover, but of better quality. It is especially recommended for soils liable to heaving by frost and affords to the bees excellent pasture ground.

The best kind of box for the apiarist to use will depend in a great measure upon what his market demands. Pieces of white comb can be utilized to advantage in surplus boxes, and it encourages the bees to work in them sooner.

Pollen is in appearance a small yellow dust contained in the cells of the anthers. When viewed with the microscope it appears as grains of various forms, usually spheroidal or oval, sometimes triangular or polyhedral, but always of the same form and appearance in the same species. Externally they are curiously and often elegantly figured, with stripes, bands, dots, checks, &c.

Mons. J. Fiorini, an Italian queen breeder, who for several years has furnished Messrs. Dadant & Son with queens from Italy, went to the Island of Cyprus last November. He spent two months there studying the habits of the native bees, and, having procured eight colonies, returned with them to Northern Italy. He found much difficulty in obtaining them, on account of the superstition of the natives; they think that if they sell any bees to foreigners that all the rest of their bees will leave of their own accord with the colonies sold.—[Ex.]

Entomology.

The Tomato Worm.

(See Illustration, Page 152.)

Almost everyone, I imagine, has had at some time or other his wonder and curiosity excited by the strange-looking pupa of the Tomato Worm, as it is familiarly termed. It is frequently discovered when digging potatoes in the autumn, or disturbing the soil where tomatoes have been grown. This singular object, which is very correctly represented in the figure, is about two and a half inches long and half an inch in diameter, of a chestnut brown color, and round in shape, tapering towards both ends; from one end, which is the head of the specimen, there proceeds a long curved proboscis like the handle of a jug; the other end is divided into broad rings and terminates in a point. To one who had never seen anything of the kind before this object must at first prove a great puzzle; but a little careful examination will remove some of the mystery. It must be alive, for the tail end moves; but it cannot walk or crawl, and is quite helpless. If we examine it more closely, we find that the rings that move when the creature is touched are very likely the rings of a large caterpillar, while at the other end we can trace the eyes, antennae, and even the short wings of a moth, but all enclosed in a hard brown shell. These things show us that it is an insect in its helpless pupa state; the long jug-handle is the case which contains its tongue for sucking out the nectar from flowers. If we keep it in some damp earth till the next year, there will emerge from it a large handsome moth, of an ashen-grey color, relieved by five bright orange-yellow spots on each side of its body; its wings expand fully five inches in length, and its body is about the same length as the pupa or chrysalis; its tongue is of immense length, about double that of the body—when at rest it is coiled up like a watch-spring beneath the head of the insect. The name of the creature is the Five-spotted Sphinx.

The larva or caterpillar of this insect, when fully grown, is larger than it is shown in the figure, being as thick as a man's little finger, and over three inches in length. It varies so much in color that people often suppose that a number of different species of "worms" are attacking their plants. It is frequently of a bright green marked with white, and having along each side a series of seven oblique greenish-yellow stripes; again it may be found with its general color dark green, dark brown, blackish green, and other shades, even to deep black. On the last segment of the body there is a curved horn or tail.

The larva is found feeding during July and August. It often so closely resembles the foliage on which it reposes, the bands on its sides mimicking the ribs of the leaves, that it cannot always be detected; its presence, however, may usually be traced by the singularly marked cylindrical pellets of excrement on the ground and the stripped leaf-stalks of the plant. When fully grown the larva descends into the earth, and there makes a chamber for itself in which to change to its pupa state. Fortunately the insect is not a very common one, its numbers being kept in check by a small Ichneumon-fly; otherwise from its size and voracity it would prove most destructive. Very rarely are more than a few specimens seen in a tomato or potato patch. In the summer of 1878, however, it was so abundant that a market-gardener who lives near me gathered four bushels of the caterpillars off an acre and a quarter of tomatoes in one day! That year some of the insects attained to the moth or imago state in October, but generally the pupa remains quiescent in the ground till the following season and the moth appears in June or July.

Notwithstanding the extraordinary abundance of the larva in 1878, there were but few to be seen last year in this neighborhood.

An account of the "Tomato Worm" will hardly be complete without some reference to the supposed poisonous character of the larva. Some ten years ago I took the trouble to trace up some of the stories then very common in the newspapers about cases of poisoning and death from the effects of the bite or sting or venomous spittle of this insect! The result of my enquiries in many instances proved to be exceedingly amusing. In every case I found that no one could give any information whatever as to even the name of the person who was supposed to have died from the effects of this insect, nor could I obtain a single authentic instance of injury from it. This was, of course,

what was to be expected, as the caterpillar is physically incapable of injuring anyone with its bite—much less with its tail or horn, or imaginary sting. In all probability these stories have originated in the fact that persons have been severely affected by getting some of the juices of the tomato plant into an open cut or sore, and then ignorantly have attributed their trouble to the venom of the ugly but innocent caterpillar.—[Rev. C. J. S. Bethune, Port Hope, in Canadian Entomologist.]

Miscellaneous.

A valuable liquid fertilizer for vines, tomatoes, cabbage, and all garden truck:—Take 20 lbs. of clear stable (horse) manure; put in a coal oil barrel; fill with water; let stand 24 hours and it is ready for use; apply with garden watering pot to vines, &c., once or twice a week, and you will be surprised at the wonderful growth of plants thus fertilized. The liquid must not be darker than weak lye water. It is good for anything. The only limit to its use is the labor in supplying and applying. It is fine on flowers applied once a week. Twenty pounds of manure thus applied will produce better results than a waggon load the usual way. Two ounces of ammonia to one barrel of the liquid will increase its value, and one-quarter of an ounce of carbolic acid (in liquid form) will aid materially in keeping insects from plants, &c. The liquid is in itself good; try it.

WATERING.—We hear much said and see much written about watering trees and plants, that is doing more harm than good. A small quantity of water sprinkled over the ground around the plants in hot, dry weather, is of no use, and, in fact, a detriment and damage, for the reason that it leaves a hard, dry crust around the plants. Don't do it unless your ground or plants are well mulched—then "baking" or "crusting" is prevented. If well mulched, a little water does great good, but if not mulched positive harm unless earth is drawn away, and after water is poured on, the earth pushed back.

A writer from the California Agricultural College says, in the Country Gentleman:—The running out of grain cannot be attributed to soil or climate. It must be in the way farmers use their seed, as my two years' experience has clearly proved. I here make the assertion without any fear of an honest contradiction, that the deterioration in almost all grain—when raised in good soils, always comes from an improper, careless, and untimely selection and saving of seed. There is no possibility of any seed "running out" when care and science are brought to bear upon the grading, and proper cultivation. It is contrary to vegetable physiology for any well-established, well selected and well cultivated seed to deteriorate. There are no facts on record to sustain such a theory, no more than there are against the rules that stockmen use in breeding. Wheat and all other grain can be bred up to any quality, color or grade, in the same manner as are horses, cattle, hogs and sheep.

Mr. Geddes says:—"If farmers would exercise as much care in selecting seed wheat as they do in corn there would be less running out." This is a fact, and I am surprised that more farmers do not see it. In my experiments with corn, I have tenaciously held the fact that the top ear bears the only seed suitable to plant, and as tenaciously do I hold that there is only one head in each stool of wheat perfect enough to keep it from deteriorating. Another reason why wheats run out is that, as long as farmers take their seed from the common granary, so long will it diminish in yield. They may sift it, sling it across the barn floor, and run it through a hundred sieves, and it will still degenerate. Not until they exercise the patience and science of hand-picking a bushel or two every year from the top heads of the best stools, and sowing them alone on some choice lot for seed the following year, will they escape the degenerating influences of bad, unremunerative crops. Wheat is so remarkably sensitive that it receives the slightest attention most kindly; and, on the other hand, the presence of any foreign plant (even another kind of wheat), weed, fly, bug or worm, takes from it its life to such a degree that every farmer loses many bushels annually.



The Family Circle.

"Home, Sweet Home."

On Cheerfulness as a Medicine.

BY A FAMILY DOCTOR.

The power of mind and will over the body, either for good or for harm, is very remarkable, and no physician nowadays, when treating any case, whether acute or chronic, thinks of dispensing with the truly curative agent called *hope*. A medical man seldom troubles himself to consider in what particular way, or through what particular channel, either hope or fear acts upon his patient; he only knows that it does act, and he is as careful to give the one as to avoid the other.

The impression conveyed to the mind from external influence, no doubt, acts upon the heart and other internal organs, through the medium of the nervous system. Joy is thus a stimulant to the animal economy, while grief and fear are, on the other hand, depressants. As an example of the effect of the latter, we may mention the well-known fact, that sudden grief or bad news of any kind will often entirely destroy the appetite, which only the moment before was everything that could have been desired. In a case of this kind there would be such a shock to the nerves as would cause a loss of power to circulate the usual amount of vital force, a lowering of their temperature, in fact, and consequent lessening of tone both in stomach and heart. But leaving physiological reasoning for a moment on one side, we have all heard the very old saying, that "imagination can either kill or cure." We have all heard it, and to a certain extent we all believe it; but the first of it is that scarcely any of us believe it half enough. I would do so, we would take good care not to forget it when sick or ailing, and it would be then that we should reap real benefits from its truth. Let psychologists explain it as they like, it is a curious fact that a person, being well, may fancy himself ill, and become ill; or, being ill, he may fancy himself getting well. I will tell you one or two of the experiences of an intimate friend of mine, with regard to imagination. He is captain of a gallant merchant ship. When quite a boy he had to make a journey, several times a year, of some two or three hundred miles in a steamboat, going and returning from school. During the whole of the first trip he was down with sea-sickness, and no doubt suffered severely, and he was no better on any subsequent voyage; but the strangest part of the matter is this—he used to get "sea-sick" before going on board, simply with the thoughts of it. Even when some distance from the vessel, the sudden ringing of the steamer's bell turned him instantly ill. When school days were over, and it became his lot to be a sailor in earnest, he joined a ship that was going on a very long voyage. He was kindly treated by the captain, and not only due time, but, in my opinion, too much time, was allowed him to recover from *mal de mer*, as the French call it. For no less than fourteen days he lay in hammock, and during all that time nothing at all in the shape of food crossed his lips, and he drank only water. On the afternoon of the fourteenth, however, the captain forced him to get up, dress, drink a glass of sherry, and come on deck. As the fresh sea-breezes blew around him, hope revived in his heart. He imagined he was better, and positively came down to tea. And that same night, some time after turning in, hunger compelled him to get up again, and although half a gale of wind was blowing at the time, feel his way across the reeling deck to the steward's pantry. No wind or seas that ever moved could make my friend sea-sick after that night. So you see that imagination is really a tool that can cut in two directions.

But, the reader may ask me, can imagination actually relieve distress of feelings?—can it, for instance, destroy the pain of an aching tooth?—"Pluck" or moral courage undoubtedly will, and a determination to bear up against any illness has a decided tendency to banish its sting. This, then, is the medicine I bring you for this merry month of May. I bring you *hope*. And I desire you to try my medicine, in a common-sense way, of course; I am not going to ask you to do impossibilities, but if you take my advice practically to heart, and act thereon, then, just as surely as the green leaves are now on tree and hedgerow, as surely as the birds are singing, and a long summer all before you, whatever be your complaint, it shall be relieved and very likely cured entirely.

Now, if I could really convince you that you really are not so bad as you imagine yourself to be, I should be giving you a little ray of hope, shouldn't I? Well, I do not know the state of your case, to be sure; but I know one thing, and that is, that invalids almost invariably take too gloomy a view of the condition of their health, and that doing so retards their cure. On the other hand, that cure generally dates from the very day on which they first begin to take a hopeful view of their case. I feel quite sure that it is hope, or imagination, or fancy that cures one-half, if not more, of all the cases we send to the sea side or abroad. The change is beneficial in one way—it gives the start, the patient feels a little better, and at once plucks up heart of grace, and his courage carries him through.

I think I have done good to patients in this way. On the day on which I was consulted I have written down carefully the symptoms of their complaint, then treated it for, say, a week. At the end of that time the sufferer probably would not, or could not, admit himself better, but a reference to the symptoms detailed a week before would, in almost every case, show a decided improvement; then hope would come in, the spirits would rise, and, hurrah! we had crossed the Rubicon, and could make sure of riding safely into the camp of health.

Now, reader, life, when one has good health, is such a pleasant thing, that the most sickly or weakly ought to do all they can to throw fear and gloom to the winds, and make a fair fight at getting well. The plan of writing down one's symptoms on one day, and comparing it with those of a week

or ten days thereafter, is one that I can highly recommend to any invalid; and it should be remembered that if one is no worse at any particular time, it is almost a sure sign there is some little improvement. Patience should then be cultivated, and gratitude and joy. But over-anxiety for one's health means worry, and worry is one of the depressing passions, and tends to retard the cure. And, indeed, over-anxiety often leads to worse, for it may cause the invalid either to wear out his strength by making tiresome journeys or voyages to health-resorts, or stopping at home, tax his stomach and burden his body by taking too many medicines. I have always preached simplicity in the matter of drugs.

Well, then, for the sake of hypothesis I must presume that the reader is an invalid, or doesn't enjoy good health, but wishes to be well, and I will give her or him some general instructions for the attainment of health. First, then, bearing in mind that good spirits and good health are almost synonymous, by cultivating courage and a buoyant frame of mind, and a determination not to cast down, you fix the ladder that is to lead you step by step to freedom from illness on the firmest basis you could choose for it. Next, put yourself on some simple plan of treatment, or, better, let your own physician prescribe for you, and on no account deviate from his orders. He will tell you what organ of your body is ailing, and the medicine that is most likely to be of service to you. I do not bid you despair if it be even your heart, for though it should be, that is no reason you should be cast down, or sad; plenty of people live with diseased hearts to a goodly old age, and do not even then succumb to their great bugbear.

The medicine you take will no doubt do you much good, but it is not half the battle by any means; and you must make strenuous efforts to obey the laws of health, as regards what you eat and drink, and how you act. You have to examine yourself carefully, and if you do, I have no doubt you will find some error in your way of living, some need of reformation, as most people have. Don't forget that dyspepsia produces about half the ills that human flesh is heir to, and aggravates the other half. That will give you some notion of the value of a correct dietetic regime. The digestion is often aided greatly by proper attention to the teeth. These should not only be cleaned in the morning, but after every meal, and if they are inclined to decay, or the gums are spongy, tincture of myrrh should be used as a wash, with a little pure water, or a little plain water just colored with the permanganate of potash. If the digestion is at all bad, the sleep obtained at night cannot be refreshing, and this is a great drawback to an invalid, and keeps him longer ill than he would otherwise be. He should, therefore, be out in open air exercising all he can, remembering, however, that the exercise should never be fatiguing, and certainly never of an exciting nature. He must not forget that during healthy sleep the blood has to a great extent left the brain, but anything that excites drives the blood to the head, the brain capillaries get fuller, and are unable to empty themselves properly, and a restless night is the consequence. There is a great nerve-connection between brain and stomach, and hence, if the latter be overloaded, or even too empty, or if the contents of it be too acid, sleeplessness or bad dreams will be the result, and the patient will find himself peevish and ill next day. Invalids should avoid every depressing emotion of the mind; fits of anger are peculiarly lowering; they should cultivate a calm and even frame of mind.

Another thing to be guarded against is hurry, either in dressing or in eating. Early hours are to be recommended, and that the action of the skin should be duly maintained is really a *sine qua non*. The sponge-bath, with a handful of sea-salt in it, should be taken every morning, but a warm or tepid bath of fresh water and soap should be had recourse to twice a week. The headaches of which weakly people often complain are greatly relieved by this system of bathing.

Simple though these rules be, carried out fairly and with regularity they have worked wonders, especially in conjunction with some of the tonics, and a light and easy frame of mind.

How Sunken Ships are Raised.

When a ship sinks some distance from the shore in several fathoms of water, and the waves conceal her, it may seem impossible to some of our readers that she can ever be floated again; but if she rests upon a firm sandy bottom, without rocks, and the weather is fair enough for a time to give the wreckers an opportunity, it is even probable that she can be brought into port.

In Boston, New York, Philadelphia, Baltimore, Norfolk, and New Orleans, large firms are established whose special business it is to send assistance to distressed vessels, and to save the cargo if the vessels themselves can not be prevented from becoming total wrecks; and these firms are known as wreckers—a name which in the olden time was given to a class of heartless men dwelling on the coast who lured ships ashore by false lights for the sake of the spoils which the disaster brought them.

When a vessel is announced to be ashore or sunk, the owners usually apply to the wreckers, and bargain with them that they shall receive a certain proportion of her value if they save her, and the wreckers then proceed to the scene of the accident, taking with them powerful tug-boats, large pontoons, immense iron cables, and a massive derrick.

Perhaps only the topmasts of the wreck are visible when they reach it; but even though she is quite out of sight, she is not given up, if the sea is calm and the wind favorable. One of the men puts a diving dress over his suit of heavy flannels. The trousers and jacket are made of India rubber cloth, fitting close to the ankles, wrists, and across the chest, which is further protected by a breastplate. A copper helmet with a glass face is used for covering the head, and is screwed on to the breastplate.

One end of a coil of strong rubber tubing is attached to the back of the helmet, to the outside of which a running cord is also attached, and continued down the side of the dress to the diver's right hand, where he can use it for signaling his assistants when he is beneath the surface. His boots have leaden soles weighing about twenty-eight pounds; and as this, with the helmet, is insufficient to allow his descent, four blocks of lead, weighing fifty pounds, are slung over his shoulders; and a waterproof bag containing a hammer, a chisel, and a dirk-knife is fastened over his breast.

He is transferred from the steamer that has brought him from the city to a small boat which is rowed to a spot over the wreck, and a short iron ladder is put over the side, down which he steps; and when the last rung is reached, he lets go, and the water bubbles and sparkles over his head as he sinks deeper and deeper.

The immersion of the diver is more thrilling to a spectator than it is to him. The rubber coil attached to his helmet at one end is attached at the other to an air-pump, which sends him all the breath he needs, and if the supply is irregular, a pull at the cord by his right hand secures its adjustment. He is not timid, and he knows that the only thing he has to guard against is nervousness, by which he might lose his presence of mind. The fish dart away from him at a motion of his hand, and even a shark is terrified by the apparition of his strange globular helmet. He is careful not to approach the wreck too suddenly, as the tangled rigging and splinters might twist or break the air-pipe and signal line; when his feet touch the bottom, he looks behind, before, and above him before he advances an inch.

Looming up before him like a phantom in the foggy light is the ship; and now perhaps, if any of the crew have gone down with her, the diver feels a momentary horror; but if no one has been lost, he sets about his work, and hums a cheerful tune.

It may be that the vessel has settled low in the sand, that she is broken in two, or that the hole in her bottom can not be repaired. But we will suppose that the circumstances are favorable, that the sand is firm, and the hull in an easy position.

The diver signals to be hauled up, makes his report, and in his next descent he is accompanied by several others, who help him to drag massive chains of iron underneath the ship, at the bow, at the stern, and in the middle. This is a tedious and exhausting operation, which sometimes takes many days; and when it is completed, the pontoons are towed into position at each side of the ship.

The pontoons, simply described, are hollow floats. They are oblong, built of wood, and possess great buoyancy. Some of them are over a hundred feet long, eighteen feet wide, and fourteen feet deep; but their size, and the number of them used, depend on the length of the vessel that is to be raised. Circular tubes, or wells, extend through them; and when the chains are secured underneath the ship, the ends are inserted in these wells by the divers, and drawn up through them by hydraulic power. The chains thus form a series of loops like the common swing of the playground, in which the ship rests; and as they are shortened in being drawn up through the wells, the ship lifts. The ship lifts if all be well—if the chains do not part, or some other accident occur; but the wreckers need great patience, and sometimes they see the labor of weeks undone in a minute.

We are presupposing success, however, and instead of sinking or capsizing, the ship appears above the bubbling water, and between the pontoons, which groan and tremble with her weight.

As soon as her decks are above water, so much of the cargo is removed as is necessary to enable the divers to reach the broken part of the hull, which they patch up with boards and canvas if she is built of wood, or with iron plates if she is of iron. This is the most perilous part of the diver's work, as there are so many projections upon which his air-tube may catch; but he finds it almost as easy to ply his hammer and drill in making repairs under water as on shore.

The ship is next pumped out, and borne between the pontoons by powerful tugs to the nearest dry-dock, where all the damages are finally repaired, and in a month or two she is once more afloat, with nothing to indicate her narrow escape.

"I would take a trip round the world," said Mr. Shoddy, "if it wasn't for the expense of returning home again."

The Farmer's Wife.

BY ALEXANDER HYDE.

A farmer without a wife is like half a pair of scissors. No man amounts to much without one, but for a farmer a wife is one of the essentials. No sooner was Adam created than the Creator said: "It is not good that the man should be alone; I will make a helpmeet for him." Whoever, since Adam's day, has attempted to get along without a wife has found it "not good." A woman rounds out the life of man, supplements his defects, shares his troubles, doubles his joys, sweetens his toil as well as his tea, is his truest friend and adviser—in short, is his "helpmeet." In the circle of our acquaintance, which is not limited, we can call to mind only two farmers—one an old bachelor and the other an old maid—who are making this venture, and awkward work they make. In a pecuniary view, both are doing well; from the stand-point of comfort, manhood, and womanhood both are doing miserably. Think of the old bachelor making his own bread and butter, and eating it in solitude; working all day, and coming home at night to his bed and board of single blessedness. There is no comfort, no manliness in such a life, unless it is the miserly happiness of hoarding wealth for heirs, he knows not whom. The farm-life of the old maid must be still more miserable. Woman can do a great many things, and do them better than can a man, but she never was made to run a farm. She has various and increasing rights, but following the plow, driving oxen, managing bulls, and breaking colts are not among them. She is an indispensable helpmeet to the farmer, but her sphere is a domestic one, literally domestic, that is, belonging to the house.

Solomon says: "Whoso finds a wife, finds a good thing." Some who have married shrews and slovens have been inclined to dispute the wisdom of Solomon in this proverb, but the trouble is, they married women, not wives. A wife, including all that is signified in the name, is a good thing always and to every one, and to the farmer is especially good, as she is such an important factor in his business. She does not, as in the days of Solomon, seek wool and flax, nor lay her hands to the spindle and hold the distaff, but she looketh well to the ways of her household and eateth not the bread of idleness. The farmer's wife is emphatically a partner in his business. On her devolves the care of the dairy, in addition to the routine of household duties. Her sphere of action, though strictly domestic, is a wider one than that of the ordinary housewife. As her husband, in virtue of his ownership of land which he subdues and tills, is entitled to the name of landlord, with all the cares and honors which the name implies, so she is entitled to the name of landlady, and must assume the responsibilities as well as the respect that go with this position and title. That there are unusual duties connected with the station is manifest from the fact that there are many women desiring to find husbands, but unwilling to marry husbandmen, because they dislike to do the work—drudgery they call it—peculiar to farmer's wives. All such have to learn that she only is a true wife "who doeth her husband good all the days of her life, who girdeth her loins with strength and strengtheneth her arms, who stretcheth out her hands to the poor, who is not afraid of the snow for her household, for all her household are clothed, who openeth her mouth with wisdom, and in her tongue is the law of kindness, whose children rise up and call her blessed, whose works praise her." Such is Solomon's picture of a good wife, and it was evidently intended for the wife of a husbandman. We will not say that the wife of a farmer holds a position above all other wives, for we find in every occupation those who, with the relation of wife, assume great responsibilities, do honor to their husbands, are ornaments to society and bless mankind. We do say that the position of a farmer's wife is one peculiarly adapted to a life of usefulness, and we would like to ask the frivolous and fashionable girls who scorn the hand of a husbandman, whether a life spent in useful employment such as the average farmer expects of a wife, will not, in the retrospect, give more satisfaction than one spent in the gay rounds of fashionable society? The question needs no answer. The answer goes without saying.

The position of the wife of a farmer is not only one of usefulness, but it is also very stable and independent. Farmers seldom fail; we may say say never, or hardly ever, if they attend to their legitimate business. Certainly, the risks of agriculture are less than those of other callings. The farmer may not have the wealth and display the

style of the merchant and manufacturer, but his wife does not live in fear of panics and Sheriff's visits. The soil always responds generously to generous culture, and her cellar and pantry are never empty. She is sure of a comfortable living, let trade be ever so much disturbed. If the grain and roots cannot be sold at a profit, they can be consumed in the house and barn, and the farm will be all the more productive for such consumption. Such independence and freedom from risk are far more conducive to happiness than all the wealth—with its corroding cares—which railroad, stocks bought and sold have ever earned. If we had a dozen daughters, we should consider them more fortunate if comfortably settled on farms than if married to rich Wall street brokers.

While thus appreciating the natural advantages of the wife of a farmer, we wish to add that the comfort and usefulness of her position depend largely upon the sympathy and co-operation of her husband. Some farmers, we are sorry to say, treat their wives as though they were beasts of burden, made to bear children and do drudgery. Indeed, we have known those with whom the horse seemed to be first and the wife second.

If the position of a farmer's wife involves peculiar labors and responsibilities, as intimated, then she is entitled also to peculiar consideration of her husband. If she is emphatically a partner in his business, she should be consulted in all business matters, and her advice treated with all proper respect. There is no so unselfish, and at the same time interested, a counsellor for any man as his wife, and we are persuaded that those business men are most successful who confide their affairs to their wives and ask their advice. If this is the case in complicated mercantile and manufacturing business, with which women are not expected to be familiar, much more is it true in farming, with which, in some of its branches at least, the wife has much to do. When we find that a young farmer has secured a wife, and treats her as a partner in his business, we feel far more confidence in his success than when he is backed up by a rich father or a large capital, and we are confident that many of the mistakes which we have known farmers to make would have been avoided if they had taken their wives into their counsels. There is no henpecking in this; it is the part of wisdom, and whatever is wisdom's part is true manhood.

How Steel Engravings are Printed.

A brief explanation of the method of producing steel-plate engravings will be of general interest, since a misapprehension exists in the majority of minds on this subject. The prevailing opinion seems to be that steel engravings are "struck off" by steam power at the rate of thousands per hour, very much as newspapers are printed.

Oil painting is the highest department in art. Next in order is the steel-plate, and no other style of production can compare with it in its grade of excellence. In the first place the design furnishes the subject to be engraved, usually in the form of an oil painting, and often at an expense to the publisher of thousands of dollars. The design is then engraved on a highly polished plate of steel about an eighth of an inch thick. Skillful engravers must be employed in the process of engraving a creditable plate, often spending many months, or years of constant work in its completion, and frequently at an expense of many thousands of dollars.

However perfect the steel plate the engravings therefrom will have but little or no value to the critical eye unless well printed by a competent printer who has spent years in learning and mastering his art, so as to be able to perfectly produce the engraver's translation of the painter's thought.

The highest portions of the engraved plate produce the lights, and the deepest engraved parts the shadows or dark portions in the picture, which is the reverse of type printing. The steel-plate is warmed over a furnace to facilitate the management of ink when spread thereon. A very fine and thick ink is rolled over and into the engraved portions with a hand-roller, which is passed and repassed over the plate many times. The ink is then removed from the surface portions of the plate—first by the use of cloths—after which the naked hand more perfectly wipes the ink from the surface—some time being spent in thus "polishing" the plate, so that it may produce the desired grades of light so that if brilliant they shall be mellow and harmonize with its rich and expressive darker portions. The plate is now removed from the furnace and placed upon the press made expressly for this kind

of printing. A thick sheet of paper that has been wet for many hours is laid over the polished plate, and is passed through the press, receiving a powerful pressure. The wet sheet with its pictured impression is carefully lifted from the plate, dried between mill boards, dry pressed, and prepared for market—the whole process requiring a number of days of skillful management. The warming, inking, wiping, polishing of plate, etc., must be repeated in printing each picture. No steam power or mechanical invention lifts the sheet from the press—all must be done by hand work.

It is a fair day's work for two men to print and prepare for market from ten to twenty-five copies of the largest size engravings. Thus it will be seen that after expending a large sum of money for paintings, and engraved plates, and waiting months or years for their completion, that the multiplication of creditable engravings is slow and expensive and their beauty and finish depends very much upon the skill of the printer, the importance of whose vocation has never been adequately appreciated by those not familiar with his department of art; nor by those who persist in having and paying for cheap work, and in flooding the country with execrable prints—a dishonor to the painter and engraver.

When all fully understand the slow and costly process by which engravings of real merit are produced, and other facts in art, the more clearly it will be realized that the quality of the work should regulate the price. Then the demand for pictures by the square yard with which to cover walls will entirely cease, and the quality and the soul of the work, not quantity will be the thing desired, and then many "palatial" as well as "cottage homes" will be more beautifully adorned.

A Salad.

A salad, well prepared, is a very charming compound, and, when taken with plenty of oil, very wholesome, attractive and agreeable; badly prepared it is an abomination. A Spanish proverb says that four persons are needed to make a good salad—a spendthrift to throw in the oil, a miser to drop in the vinegar, a lawyer to administer the seasoning, and a madman to stir the whole together. Lettuce is generally supposed to form the foundation of a salad, but there are few fresh vegetables that may not be used; and on the Continent every known vegetable is, when plainly dressed, used cold for salads; and cold meat, fish, and game, are served in the same way. Amongst the vegetables appropriate for salads may be named asparagus, artichokes, beetroot boiled, basil celery, chives, cucumbers, chervil, cauliflowers, dandelion leaves, endive, French beans, garlic, lettuces of all kinds, lentils, mustard and cress, mint, onions, parsley, potatoes, radishes, shallots, sorrel, tarragon, tomatoes, Windsor beans, and watercress. Though a variety in salads is easily secured, great care is necessary in the preparation of the dish, and three or four rules must be closely observed if the salad is to be a success. First, the vegetables must be young, freshly cut, in season, and in good condition. If possible, they should be gathered early in the morning, or late in the evening, and should be kept in a cool, damp place. Secondly, the vegetables should not be allowed to lie long in water. If withered they may be put in for a short time to render them a little crisp, but if fresh, they should be simply rinsed through the water and dried immediately. Thirdly—and this point requires most careful attention—the vegetables must be rendered perfectly dry after washing. The best way of doing this is to drain the salad and shake it first in a colander, or salad-basket, and afterwards in a clean napkin held by the corners and shaken lightly till the salad is dry. Fourthly, cut the salad with a silver knife, or tear it in shreds; do not prepare it until a short time before it is wanted, and on no account mix the salad dressing with it until the last moment. It is a very usual and excellent plan to pour the liquid in the bottom of the bowl, lay the shred vegetable upon it, and mix the salad at table. A wooden fork and spoon are the best for this purpose. Salads may be garnished in various ways, and affords ample opportunity for the display of artistic taste.

Look behind and underneath the pillows and cushions of the sofas in the drawing-room or parlor, and if you find concealed there any cloths, or dusters, or rags, or "things to mend," you may come to the safe conclusion that that house is an unclean one.

Minnie May's Department.

MY DEAR NIECES,—The beautiful sunshine with its life and health-giving power brings back the drowsy humming flies, and house-keepers' tribulations begin. The sensible house girl will bar and bolt them out with mosquito netting, but do not scare them off with darkness. Do not close up your shutters and make your house seem like a sepulchre. If the bright beams do fade your carpets a little, better than the roses in your cheeks. No one can be happy or healthy in a sunless house. Why are many so careless and ignorant of perfect ventilation? It is a common mistake, and disastrous are the results. Oxygen, the life-giving principle, is as essential, even more so, than food to the maintenance of life. Sleeping rooms should always be ventilated by an open window or a transom light leading into an airy passage. Oh! the damp fetid odors that gather about unlighted, unaired rooms—the deadly miasmas which lurk in the folds of the drapery. If our eyes could be opened to see them, we should throw open our doors and windows to let the free air chase out the pestilence. It is said the effects of bad air are most baneful to the mind. Our advice is to open your windows, stand in your doorway and slowly and freely inhale the life-elixir, which will give bloom to your cheek, strength to your blood, nerve and muscle, and cheerfulness to your mind.

MINNIE MAY.

Answers to Inquirers.

MISS LA C.—It is necessary to provide napkins at luncheon or any other meal; and it is very rude to leave the table before the others without asking to be excused. If possible, wait until the others are ready.

W. J. B.—No, it is not usual to call on a lady without receiving an invitation; but you might ask her permission to call. Many young ladies do not like to ask gentlemen to call, and they are quite right. If girls would go out oftener with their mothers and allow them to give the invitations, they would add greatly to their own dignity. If you are very desirous of corresponding with the lady, but have only met her a few times, you might write a very respectful note asking permission to correspond.

C. D. S.—"I have an unsightly fence, old shed, &c., in view of my house which I want to cover with some vine. What will be best for the purpose?" For such use the perennial climbers give better satisfaction than do the annuals, since one does not have to wait for them to attain their growth every season. The Virginia creeper will serve well; so will the honeysuckle, trumpet vine and climbing bitter-sweet.

MRS. W.—"What is the best disinfectant to use for pouring down sink-holes and other places about the house in summer?" A good disinfectant fluid is a solution of copperas, made in the proportions of five pounds of copperas to about three gallons of water; the addition of a gill of crude carbolic acid improves the solution.

LULU.—We understand you to say that a lady invited you to spend the evening with her together with two young gentlemen; during the evening she withdrew to another room with one of the gentlemen, leaving you alone with the other. Knowing this other to be termed a flirt, you left the room, and now wish to know if you acted impolitely. No, you did quite right; but your hostess was very rude indeed. This manner of entertaining gentlemen alone is contrary to good taste and good manners, and unheard of in good society.

You also ask what we would think of a lady who went to a party with a gentleman, but while there avoided him, spending the evening with another gentleman. We think the lady behaved very rudely, and hope it will be a long time before any gentleman takes her to a party again.

MRS. S.—"In shopping by mail how is the money sent? Who is responsible if it is lost? Are there any particular rules for making out the orders?" Send to the house you desire to patronize for a price list and a catalogue. Every firm

doing a large order trade issues one. In it will be found directions both as regards writing out an order and sending the money. Either post-office money order or check will prevent all possibility of loss.

CHESTER.—From what you say we should judge that the young man merely visits at your house as a friend, and you should show by your manner that you do not consider that his visits are paid particularly to yourself. You say you have a piano, but are a poor player. Now, why not devote yourself to practising music instead of worrying as to the young man's intentions? You are very young, and if he is fond of music he will be pleased by your progress. It is quite possible that even now your presence is an attraction to him, but don't allow yourself to become a love-lorn maiden. If you have plenty of leisure take up other studies besides music. Nowadays, when books are so cheap, a young lady might study up so many useful subjects, which would greatly add to the comfort and elegance of the home which she may some day preside over; and a girl who fills her head with high aspirations may be quite sure that her heart will take care of itself.

SCHOOL-GIRL.—Is it proper for persons who are visiting for a week or longer, to fold and put their napkins in the rings or not? Ans.—When rings are provided, napkins should always be folded and put into them. You say a friend wishes to know if she should attend an entertainment with a gentleman and without a lady chaperon. We have already stated that it is not usual in good society to do so. If it is usual where you reside, and your parents do not object, we suppose it is all right.

RECIPES.

BOILING RICE.

Every few weeks or so I see in one of the half-dozen papers we take, an account of the way that rice is cooked in Japan, and the account goes on to say how it is done there and how it ought to be done everywhere else; but I find it about the same as it is cooked in China, in Germany or in Halifax. The simple secret is to swell the grain up as big as possible and so that they will roll apart, the same as one cooks hominy. Thus:—Take just cold water enough to prevent the rice burning to the pot, which has a close-fitting cover and is set on a moderate fire. The rice is steamed rather than boiled, until it is nearly done, then the cover of the pot is taken off, the surplus steam and moisture are allowed to escape, and the rice turns off a mass of snow-white kernels, each separate from the other, and as much superior to the soggy mass we usually get in Canada as a fine, mealy potato is to the water-soaked article.

CEMENT FOR GLASS.

A good cement for glass, and one which completely resists the solvent action of water may, according to Herr H. Schwarz, be prepared by the following process:—From 5 to 10 parts of pure, dry gelatine are dissolved in 100 parts of water. To the solution about 10 per cent. of a concentrated solution of bichromate of potash is added, and the liquid is kept in the dark. When articles joined by this cement are exposed to the light, the gelatine film is acted upon by the chemical rays; the chromate being partially reduced becomes tough and durable.

SUNSTROKE.

It may be useful to give directions for the treatment of sunstroke until medical aid can be obtained. Sunstroke is a sudden prostration due to long exposure to the sun's rays in summer, but the same effects have been produced in bakers from the great heat of the ovens. It begins with pain in the head or dizziness, quickly followed by loss of consciousness and complete prostration. Sometimes, however, the attack is as sudden as a stroke of apoplexy. The head is often burning hot, the face dark and swollen, the breathing laboured and snoring, and the extremities cold. Take the patient at once to a cool and shady place, but do not carry him far to a house or hospital. Loosen the clothes thoroughly about his neck and waist. Lay him down, with the head a little raised. Apply wet cloths to the head, and mustard or turpentine to the calves of the legs and the soles of the feet. Give a little weak whisky and water if he can swallow. Meanwhile let some one go for the doctor. You cannot safely do more than we have said without his advice.

For ripe tomato preserves let stand together over night seven pounds of round yellow or egg tomatoes, peeled, seven pounds sugar and the

juice of three lemons. In the morning drain off the syrup and boil it, skimming well. Drop the tomatoes into it and boil gently for about twenty minutes. Lift out the fruit with a perforated skimmer and spread upon dishes. Boil the syrup down until it thickens, adding first before taking it from the fire the juice of three lemons. Put the fruit into glass and fill up with hot syrup. When cold seal or tie up.

TO PICKLE WALNUTS GREEN.

Put the walnuts in salt and water for ten days, stopping the jar close with a linen cloth, so that the walnuts cannot rise above the water; then put them in vinegar for ten days. If the walnuts are exposed to the air they will lose their color. To one hundred walnuts put $\frac{1}{2}$ oz. mace, $\frac{1}{2}$ oz. cloves, $\frac{1}{2}$ oz. nutmeg, one hundred cloves of garlic, $1\frac{1}{2}$ pints mustard-seed, a handful of horseradish sliced, some bay salt, and one gallon of good vinegar. The vinegar should not be scalded. The walnuts should be young enough so as to be easily pierced with a pin. We prefer the English walnuts if they are to be had. Or, the butternut is excellent, and can be obtained in almost every neighborhood.

FANCY CREAMS.

Allow enough new milk to fill ten small cups; set it on to boil; and having mixed in half a pint of milk, two ounces of grated chocolate, add it to the boiling milk. Just before it comes off the fire pour in the yolks of six eggs beaten, and mixed in a little milk, and half a pound of white sugar. When cool, mix in the beaten whites of the eggs, and a small quantity of vanilla boiled in milk. Fill the cups nearly full, place them in water, and boil half an hour. Eat when cold.

ST. JAMES' CUSTARD.

Place over the stove one pint of milk, in which put one large handful of bitter almonds that have been blanched and broken up. Let it boil until highly flavored with the almonds; then strain and set it aside to cool. Boil one quart of rich milk, and when cold add the flavored milk, half a pint of sugar, and eight eggs, the yolks and whites beaten separately, stirring all well together. Bake in cups, and when cold place a macaroon on top of each cup.

BAKING POWDER.

Powder and dry separately by a gentle heat one-half pound of tartaric acid, three-fourths of a pound of potato farina. Mix dry, pass through a sieve, and preserve from air and moisture.

Mrs. J. H. C. D. says: "Take 4 oz. tartaric acid, 3 oz. bi-carbonate soda, 4 oz. corn starch, mix thoroughly and use as other baking powder. This has been tried with uniform success."

How to Prepare Calf's Head.

A correspondent of the New York *Tribune* who signs himself "Michigander," thus tells how to prepare this usually neglected dish, so that it will be fit to grace a king's table. He says:—It had to be washed in cold water and then scalded. The hair was then scraped off clean, and the head split with a sharp axe down the center, from between the ears to the snout, into two equal parts. The tongue is not removed, but is split along with the rest of the head; nor are the ears cut off. The brains are then removed and washed in cold water. The head is washed in several waters until perfectly clean. One-half of the head will make a dinner for six or seven hearty people, which, at the price the head costs, is certainly cheap enough. When washed clean the head is boiled for an hour in water with a handful of salt, the head being kept covered with water to prevent unequal discoloration. The brains are boiled in a little water by themselves, and when cooked, are broken up with the water and mixed with butter and flour for thickening, and a chopped hard-boiled egg, and some chopped parsley. This is served as sauce. The sauce may be poured over the head in the dish or served in a sauce-tureen separately. The head is cut up in thin slices above the cheek, so as to give to each slice an equal portion of all the delicate parts of the meat. The lower jaw-bone may be removed easily when the head is sufficiently boiled, and the knife will then take a portion of tongue with each slice. Those who like it may boil a small piece of bacon in another pot and serve it with the head; but I advise the farmers and farmers' wives who read this, to give the bacon to the dog and eat the calf's head themselves without it, which is exactly reversing the present order of things. Prepared in this way, a calf's head in one of the most delicious dishes, as well as the cheapest that can find its way to the farmer's table, or any other man's.

Coffee.

Raw as well as roasted coffee berries are often used for medicinal purposes, but the principal use is for a beverage—a luxury. Coffee is best between six months and a year old; after that it loses some of its richest qualities. Coffee is said to act peculiarly on the nervous system and through the nerves on all the organs, increasing their vitality and quickening their action, causing the brain to act with more energy, lessening fatigue and sleepiness, helping digestion and counteracting the injurious effects of inordinate eating and the dangers of extreme heat or cold or dampness.

But though it unquestionably is of great service to many it cannot be used by all, or extravagantly by any, without injury after a time. With some it induces dyspepsia, instead of acting as a digestant, and disturbs the nervous system, instead of proving beneficial; obstructs the action of the liver; causes twitching of the upper eye-lid, congestion and hemorrhoids. Good judgment and common sense should govern one in the use of coffee, else, like many other good gifts of God, it may become a curse and not a blessing.

Few articles have been honored with so many rules and regulations. When first found growing wild in the forests by wandering tribes of Abyssinians, it was gathered to satisfy the hunger of starving men; and being found not palatable, but nourishing, after the first urgent necessity for its use had passed, each individual or tribe experimented with it in many ways of cooking or distilling.

In the Eastern Archipelago the leaves of the coffee-tree were for a long time used by the natives before they learned the use of the bean, or kernel. They were used as tea, as in our day, producing a very agreeable beverage, having the same effect as the berry, but milder. Many who have tried this kind of coffee think it far superior to any drink made from the coffee bean. But the use of the leaves injures the tree, and therefore the kernel is economical and profitable; and we imagine that most coffee-lovers who rejoice in the full strength and flavor would find the tea from the leaves quite too weak, if not insipid, for their taste.

The way in which coffee is roasted is of the greatest importance, and when not properly done no rules for making the coffee will be of any avail. In coffee-roasting establishments the berries are put into an iron cylinder, which is kept constantly in motion. "The first effect is to evaporate considerable moisture, and thus the coffee is in part roasted in its own steam, and that will not secure the best coffee. The only reliable way is to have it browned at home and under the housekeeper's own eye." First put the kernels into an open pan on the stove or range, where they will heat slowly; then move them over a moderate fire, stirring constantly until they become a shade or two darker than the green kernels. This will dispose of all the surplus moisture which the coffee contains, and it will escape without having the berries soaked in it. It will take but a few minutes to accomplish this and they should then be put into a vessel which has been slowly heated on the stove, then closely covered to prevent any of the aroma escaping, put over an even heat and kept constantly in motion. When they have been thoroughly heated through in the first operation the second part of the work can be quickly disposed of. But constant, quick motion is indispensable to guard against any one of the kernels being at all scorched. One burnt is sufficient to injure the flavor of the whole. When the whole mass is of a rich golden color take it from the fire and allow it to cool while still closely covered.

Coffee is much better when roasted, ground, and used at once, and though that seems to entail much additional labor, it really does not. When accustomed to this way one is surprised that so much extra pleasure can be secured with so little extra work.—[Christian Union.

Trust the Children.

Trust the children! never doubt them!
Build a wall of love about them.
After sowing seeds of duty,
Trust them for the flowers of beauty.

Trust the children. Don't suspect them.
Let your confidence direct them;
At the hearth, or in the wildwood,
Meet them on the plain of childhood.

Trust the little ones! Remember
May is not like chill December;
Let not words of rage or madness
Check their happy notes of gladness.

Trust the little ones; yet guide them,
And above all, ne'er deride them,
Should they trip or should they blunder,
Lest you snap love's cord asunder.

Trust the children! Let them treasure
Mother's faith in boundless measure;
Father's love in them confiding,
Then no secrets they'll be hiding.

Trust the children! just as He did,
Who for "such" once sweetly pleaded;
Trust and guide, but never doubt them,
Build a wall of love about them.

Drawing.

There is no art, with perhaps the exception of music, that begins to be cultivated so extensively among us as the art of drawing; already it is introduced into all the higher public schools in the country, and is considered indispensable in all private schools of any pretension. To say nothing of its positive utility, its moral influences are unquestionably powerful. Rightly pursued it leads to an accurate study of nature, a love of her varied phenomena, and, consequently, to a love of science. Every year a large number of amateurs graduate, whose performances would not discredit professional artists. This taste is becoming imperative, and demands sumptuous illustrations, on which the eye can feast, and the hand improve by copying. Representations of places, people, events, are of immense value to young students in drawing, when the pictures are well done, and by acknowledged artists. We have seen the advertisements of self-styled drawing masters, promising to teach the art "in twelve easy lessons," but all pupils who have been gulled by their promises have discovered that there is no railroad to the outskirts of the great domain of art. Patience and hard study only succeed.

To draw well is to write in all languages, so as to be understood by all people. The language of the eyes is the only universal language. If you would learn to draw, you must begin by studying the elements of geometry, for all the forms you will have to represent by drawing, from the simplest to the most complex, are geometrical forms. The master of Apelles, two thousand years ago, said: "The young man who wishes to draw or paint must begin by studying the laws of geometry and perspective." The principal requisite to success is to learn to see correctly, and students cannot be too strongly urged to study nature. Method and order can alone command success in this, as in every other art. The perfect is as difficult of attainment in a simple as a complex thing. The way to success is to attempt often, to work hard, and to do over again most carefully whatever is faulty, and this is the course that the greatest masters have pursued.

When the hand is thoroughly skilled in catching forms exactly, appropriate schooling will suggest itself, and dexterity comes only by practice. Pupils who desire to gain a practical knowledge should copy from nature; they should learn to copy inanimate objects, busts, furniture, familiar household articles; then simple out-door subjects, trees; then living animals.

To our mind the art of drawing is as necessary a part of a school education as the art of writing is, and we do not despair one day to see it almost as generally taught and appreciated.

A familiar instance of color-blindness is that of a man taking a brown silk umbrella and leaving a green gingham in its place.

The "black rust" on verbenas, heliotropes and petunias can be cured by stimulating the plants with liquid manure.

A good way to keep cut flowers fresh is to lay them in wet cloths. Take them out of the vase at night, sprinkle with cold water, and wrap them with cloths made very wet with cold water. The weight of the cloth will not crush the most delicate flowers, while it keeps out the air and prevents their falling to pieces or opening further.

Collect some soot from a chimney or a stove where wood is used as fuel, put into an old pitcher and pour hot water upon it. When cool use it to water your plants every few days. The effect upon plants is wonderful in producing a rapid growth of thrifty shoots, with large thick leaves and a great number of richly-tinted leaves.



"Adam and Eve."

The above cut is an illustration of the facility with which youthful minds receive impressions. The little ones figuring in this picture have evidently just heard the history of the fall of Adam and Eve, and appear to have been particularly struck with that portion alluding to the peculiar apparel of our first parents. Thinking their primitive costume preferable to their own commonplace garments, they have taken upon themselves to make a valuable addition to our already crowded fashion plates. Accordingly they have donned the verdant foliage of our cherished maple, and seem quite jubilant over the metamorphosis. But, lo! how their countenances change when they accidentally fall beneath the parental eye. The face of the mother sufficiently indicates her astonishment, whilst the features of the irate father bear strong marks of his indignation. The gardening implement he is grasping is not, however, suited to the occasion; a rake, we think, would be more appropriate. Were *mode de la mode* less exacting, we poor victims of her tyranny might now be enjoying the comforts afforded by light clothing. When will that much needed individual appear who, regardless of "what the world will say," and laying aside all human respect, will emancipate herself from Fashion's bondage and adopt a more natural and economical costume?

Uncle Tom's Department.

My DEAR NEPHEWS AND NIECES,—The happy midsummer holidays are again drawing near. It has been truly said that "all work and no play makes Jack a dull boy," and not less true is this of the man than the boy. Relaxation from labor is a human necessity, in order to maintain full vigor. The difficulty is how to find the requisite relaxation, for if the pleasure chosen be too like the daily labor very little benefit will result therefrom. A change of employment will often afford rest when entire inactivity would not. This is especially true with nervous, restless minds. Public speakers and writers, who astonish the world with their powers of accomplishment, are examples of this. Success would not attend them if they did not unbend occasionally to seek rest in change of occupation and healthful amusements.

Parents do not know they are sapping the vital energies when they discountenance all recreation, and would confine themselves to one weary round of toil. Home amusements, pleasant surprises, material for a happy evening, should be as carefully studied and planned for as any department of labor. So, dear nieces, upon you falls a large share of obligation and privilege in this respect. Whether there shall be a happy evening at home, or an exciting one spent with others, may be very much as the sisters say. Of course I do not mean in words, but as you shall have strength and tact to control. See to it, dear nieces, that you are not casting shadows to darken both your own path and that of those you love, by indifference and thoughtlessness on the subject, and resolve that there shall be play as well as work.

UNCLE TOM.

PUZZLES.

59—EASY SQUARE WORDS.

1. Joins the hands to the arm; a wanderer; the tooth of a large animal; slaves employed in husbandry; a place of the meeting of lovers.
2. To cry like a sheep; a large spoon; the name of a boy; sprightly opinion.
3. To entangle; relating to a ship; to shun; to lift; exceeding another in years.
4. A character in the "Lady of Lyons;" vigilant; a confused mixture; a plea for public sports; the vapor of hot liquor. N. E. M.

60—DIAMOND PUZZLE.

A letter of the alphabet industriously inclined; A small destructive animal, repulsive you will find; A Christmas should be this, or else the host is vexed; This age of progress, all large towns have one of these annexed; A piece of cork in fishing used to index when fish bite; The pinnacle, or brightest part of any hill or height; This letter, though it is the last, is middle of the end; Read downwards now, a word it gives by which we may ascend; Across, and now the means you see by which friend may meet friend;

61—PUZZLE.

1. Three fishers at a ferry met, Each with his blooming bride, And in a skiff that held but two Desired to cross the tide.
2. Each husband was a doating dear, And jealous to extreme, And hence the ticklish question rose, How should they cross the stream?
3. The skiff might cross as oft as wished, Each bride the boat could steer, But might with no strange men be left, Unless her own was near.

4. The night was dark, the ferry wide; The wives a wanton three; Then how did they the rivers cross, And keep from scandal free?

CAROLINE HOWSE.

62—HIDDEN RIVERS.

1. I am going to meet Isabel Bennett.
2. He is so fond of sugar, honey and other sweets.
3. Hush, Ann; only, you must go.
4. When I went to London I led grandpa about.
5. He will soon be well with exercise and amusement.
6. Where shall you go this summer? Leyton is going to Italy.
7. I want rent for six months now.
8. She is called dirty Nelly.
9. Is it ham especially cooked for me?
10. John Gray is in love with Elsie Vernon.
11. It is mine, James Duval gave it me.
12. It will enable Mamma to go out to-day.

MARY G.

63—NUMERICAL ENIGMA.

My 6, 5, 2 is a number.
My 9, 13, 16, 1, 11, 4, is a man's name.
My 19, 14, 17, 18, 15 is an English river.
My 12, 7, 15, is a domestic animal.
My 3, 13, 6 is an animal.
My 4, 7, 18, 10, 7, 2, an English city.
My 8, 7, 2, 19, 14, 11, 13, 4, is a Canadian city.
My whole may be seen every month in the FARMER'S ADVOCATE.

JULIA WESTON.

64—Whole I am a kind of weed; behead I am an extremity of an animal; twice behead and I am a member of a body; behead again and I am a kind of liquor; curtail and transpose my remainder, and I am a term used to denote a musical sound; now behead and I am a vowel. MYRA.

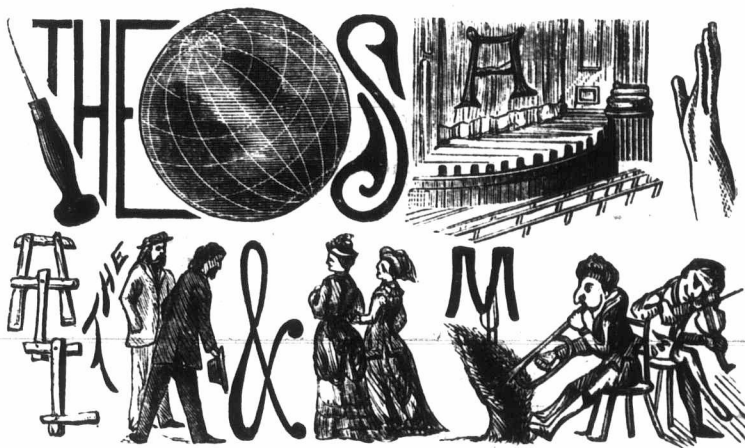
Jacob Sweeney, Mary McIntosh, John Stevens, Francis Norton, Theodora Newman, A C Sharpe, J M Jarvis, Puzzle Boy, Eben Scott, Walter Nash, Jane Melville, Henry Cumberland, Francis Evans, Julia Lovier, Arthur Nugent, Mary Palmer, Joe Foster, R H Cox, M A Lind, Benjamin Clincher, Nelly Smith, Geo Jackson, Abraham Nichols, Stephen Halls, Sally Ferguson, Harry A Woodworth.

"Robin Adair."

The story of the famous song, "Robin Adair," will well bear re-telling. Its hero was well known in the London fashionable circles of the last century by the sobriquet of the "Fortunate Irishman," but his parentage and the exact place of his birth are unknown. He was brought up as a surgeon, but "his detection in an early amour drove him precipitately from Dublin," to push his fortunes in England. Scarcely had he crossed the Channel when the chain of lucky events that ultimately led him to fame and to fortune commenced. Near Holyhead, perceiving a carriage overturned, he ran to render assistance. The sole occupant of the vehicle was a "lady of fashion, well known in polite circles," who received Mr. Adair's attentions with thanks, and being slightly hurt, and hearing that he was a surgeon, requested him to travel with her in her carriage to London. On their arrival in the metropolis she presented him with a fee of one hundred guineas, and gave him a general invitation to her house. In after life Adair used to say it was not so much the amount of this fee, but the time it was given, that was of service to him, as he was then almost destitute. But the invitation to her house was a still greater service, for there he met the person who decided his fate in life. This was Lady Caroline Keppel, daughter of the second Earl of Albemarle and of Lady Anne Lennox, daughter of the first Duke of Richmond. Forgetting her high lineage, Lady Caroline, at the first sight of the Irish surgeon, fell desperately in love with him, and her emotions were so sudden and so violent as to attract the general attention of the company. Adair, seeing his advantage, lost no time in pursuing it; while the Albemarle and Richmond families were dismayed at the prospect of such a terrible mesalliance. Every means was tried to induce the lady to alter her mind, but without effect. Adair's biographer tells us that "amusements," a long journey, an advantageous offer, and other common modes of shaking off, what was considered by the family, an improper match, were first tried, but in vain. The health of Lady Caroline was evidently impaired, and the family at last confessed, with a good sense that reflects honour on their understanding as well as their hearts, that it was possible to prevent, but never to dissolve, an attachment; and that marriage was the honourable, and, indeed, the only alternative that could secure her happiness and life. When Lady Caroline was taken by her friends from London to Bath, that she might be separated from her lover, she wrote, it is said, the song of "Robin Adair," and set it to a plaintive Irish tune she had heard sing. Such is the story.

HUMOROUS.

Wild oats is the only crop that grows by gaslight.
A wife should be like roast lamb, tender and nicely dressed. No sauce required.
The man who thinks that a boy can hoe in the garden while a circus procession is passing is always the man who has a front seat when the performance begins.
The new pair of shoes came home for little five-years-old. He tried them on, and finding that his feet were in very close quarters, exclaimed: "O my! they are so tight I can't wink my toes."
INSTINCTIVE GRATITUDE.—Maud (an aristocratic child): "How pretty and clever you are, mother! I'm so glad you married into our family!"—Punch.
A worthy couple in Massachusetts town had lost their only daughter and were deeply depressed. As they sat one evening in the drawing-room, heaving sighs at intervals, the wife remarked: "Well, George, there is one consolation. Situated as we are, we could never have gotten Jane into Boston society."—[Hour.



65—ILLUSTRATED REBUS.

66—PUZZLE.

My first is in white, but not in red,
My second is in mattress, but not in bed;
My third is in old, but not in young,
My fourth is in lip, but not in tongue;
My fifth is in fork, but not in spoon,
My sixth is in late, but not in soon;
My seventh is in axe, but not in rake.

Answers to June Puzzles.

59—
T
A R E
H E A R T
P R A V E L L E R
T R A V E L L E R
F A I L U R E
I N J E T
R

- 51—1, Ash-ton; 2, Swan-sea; 3, Cari-ble; 4, Maid-stone; 5, Live-r-pool; 6, Scar-borough; 7, West-more-land; 8, Buck-ing-ham; 9, Castle-ton; 10, Dart-mouth; 11, Harrow-gate; 12, Rams-gate.
52—1, Pare, Pear; 2, Heir, Air; 3, All, Awi; 4, Sam, Psalm; 5, Him, Hymn; 6, Hugh, Hew; 7, Mien, Mean.
53—Harrisburg.
54—Larkspur.
55—1, Re-gal; 2, Me-d-al; 3, Sta-p-le; 4, Ra-p-id; 5, G-r-um.
56—Do your duty
57—Eye.
58—Kentville.

Names of Those Who Sent Correct Answers to June Puzzles.

Mary A Richards, D A Ghent, Annie Rogers, Herbert Kitchen, J A McKinnon, Emily Woods, A V Jell, Lucy Cettingham, Laura Netherwood, Henry Johnson, Arthur Springer, Jessie Franks, Nora Anderson, George Hiscott, Jas Fraser,

How Slate Pencils are Made.

In making slate pencils broken slate is put into a mortar run by steam and pounded into small particles. Then it goes into a mill and runs into a "bolting" machine, such as is used in flouring mills, where it is "bolted," the fine, almost impalpable flour that results being taken to a mixing tub, where a small quantity of stearite flour similarly manufactured, is added together with other materials, the whole being made into a stiff dough. This dough is thoroughly kneaded by passing it several times between iron rollers. Thence it is conveyed to a table where it is made into "charges," or short cylinders, four or five inches thick and containing eight to twelve pounds each. Four of these are placed in a strong iron chamber or "retort," with a changeable nozzle so as to regulate the size of the pencil, and subjected to the tremendous hydraulic pressure under which the composition is pushed through the nozzle in the shape of a long cord, and pass over a sloping table slit at right angles with the cords to give passage to a knife which cuts them into lengths. They are then laid on boards to dry, and after a few hours are removed to sheets of corrugated zinc, the corrugation serving to prevent the pencils from warping during the process of baking, to which they are next subjected, in a kiln, into which superheated steam is introduced in pipes, the temperature being regulated according to the requirements of the article exposed to its influence. From the kiln, the articles go to the finishing and packing room, where the ends are thrust for a second under rapidly revolving emery wheels, and withdrawn neatly and smoothly pointed. They are packed in pasteboard boxes, each containing one hundred pencils and these boxes are in turn packed for shipment in wooden boxes, containing one hundred each, or ten thousand pencils in a shipping box. Nearly all the work is done by boys, and cost therefore is light.

Russian Winters.

The Russians have a great knack of making their winters pleasant. You feel nothing of the cold in those tightly-built houses, where all the doors and windows are double and where the rooms are kept warm by big stoves hidden in the walls. There is no damp in a Russian house, and the inmates may dress indoors in the lightest of garbs, which contrast oddly with the mass of furs and robes which they don when going out. A Russian can afford to run no risk of exposure when he leaves his house for a walk or drive. He covers his head and ears with a fur bonnet, his feet and legs with felt boots lined with wool or fur, which are drawn on over the ordinary boots and trousers, and reach up to the knees. He next cloaks himself in an ample top coat with fur collar, lining and cuffs; and he buries his hands in a pair of fingerless gloves of seal or bear skin. Thus equipped, and with the collar of his coat raised all round so that it muffles him up to the eyes, the Russian exposes only his nose to the cold air; and he takes care frequently to give that organ a little rub to keep the circulation going. A stranger, who is apt to forget that precaution, would often get his nose frozen if it were not for the courtesy of the Russians, who will always warn him if they see his nose "whitening," and will unbidden help him to chafe it vigorously with snow.

In Russian cities walking is just possible for men during winter, but hardly so for ladies. The women of the lower order wear knee boots; those of the shopkeeping classes seldom venture out at all; these of the aristocracy go out in sleighs. Those sleighs are by no means pleasant vehicles for nervous people, for the Kalmuck coachmen drive them at such a terrific pace that they frequently capsize; but persons not destitute of pluck find their motion most enjoyable. It must be added that to spilled out of a Russian sleigh is tantamount only to getting a rough tumble on a soft mattress, for the very thick furs in which the victim is sure to be wrapped will be enough to break the fall.

The houses and hovels of the Russian working classes are as well warmed as those of the aristocracy. A stove is always the principal item of furniture in them, and these contrivances are used to sleep on as well as to cook in. The mujick, having no bed, curls himself upon his stove at the time for going to rest; sometimes he might be found creeping right into the stove and enjoying the delights of a good vapor bath. The amount of heat which a Russian will stand is amazing, and his carelessness in facing the cold afterward not less so.—[Pall Mall Gazette]

ADDITIONAL CORRESPONDENCE.**Canada as a Stock-Feeding Country.**

SIR,—Could you make place in your very useful journal for the following extract from the Monetary Times. The value of our country for stock-feeding should be more widely known than it is, and the very great circulation of your paper is doing much in that way.

CANUCK, Yorkville, Ont.

The Monetary Times says:—The natural advantages which Canada has over her competitors are great. The climate is, without exception, the healthiest, the best calculated to produce cattle, not only free from the diseases which plague the Americans, but of purer blood and heartier physique than any in the world. Add to this the comparatively short railway journey to the port of shipment and the three days sail in river and gulf to the ocean, and the summary is still incomplete. The Canadian beeves are the only ones which are absolutely free from taint of any kind, and therefore well able to compete in British markets against all imported cattle.

Farm Engines.

In reply to J. S., Windsor, Nova Scotia:—There are a great many manufacturers of farm engines in Ontario. They are exceedingly useful, and can be procured for much less than the sum you mention. Consult our advertising columns and you will find the names of manufacturers whom we cordially recommend. Send for circulars.

SIR,—Will you be good enough to answer a very short question? Is there a variety of Arbor vitae, known as Siberian, and imported from that country. A tree dealer has offered such for sale in this locality at a high price.

A. A., Exeter.

[There is a tree known as Siberian Arbor vitae. It is a seedling of the common Arbor vitae, possessing increased vigor and a more active habit, but it is not a native of Siberia. Sometimes a foreign name is given to make an article seem more valuable. The Siberian Arbor vitae, however, possesses increased vigor and a more upright habit than the tree from which it originated, and is therefore of greater value. It is also higher priced, as it is not so easy to propagate, nor is it so easily obtained.]

SIR,—What is the best meal to feed milking cows, when no roots are fed, weather and butter yield considered? P. D. S., Bartonville, Ont.

[The best grain feed for milch cows consists of the following mixture: Ground peas one part; ground corn one part; ground oats two parts; bran two parts, and two ounces of oil-cake meal with each feed. Five pounds of the above given twice each day to a common-sized cow will be sufficient, but if the cow is large or not seeming to do well, a little more may be given.]

W. M., of Pembroke, Ont., writes that the fall wheat and rye are complete failures in the County of Renfrew, but the spring crop promises to be the best raised for many years.

N. W. P., of Ohio, in a communication to the Cincinnati Bulletin, writes as follows:

The wool crop is the one that some farmers are particularly anxious about just now. Prices in the east have not declined very much; but there seems to be a determination upon the part of dealers to put the price down. Now, I think there is no doubt but that wool would bring fifty cents per pound if farmers would hold it until the 1st of August, and no one sell until that time. The manufacturers will have to pay that price and more. There is no doubt but there are wool houses in the east that are empty; and there is a great amount of money ready, lying idle, to purchase wool with. Speculators are holding back for a purpose. They are telling manufacturers to wait, and they can lay in their stock of wool at a much less price after awhile, that wool is plenty and will be cheaper than it is now. But let these wool gamblers once get the wool into their possession, and they will tell a different story, like this: Why, there is a short crop of wool, and the price we have had to pay was so high that we shall have to hold our wools at from 50 to 60 cents. The factory men will then be in their power, and will be compelled to pay the prices asked.

Stock Notes.

The exportation of cattle from the Dominion during May was 300 per cent. in excess of any previous month.

A steer three years old, belonging to Abner Bath, of Granville, N. S., weighs 1,620 pounds. He is a handsome beast, being perfectly white, not a dark colored hair visible.

F. W. Stone, of Guelph, Canada, has sold to Lee & Reynolds, Camp Station, Idaho, five Hereford bulls, viz., Paragon, Picture 2d, Grandee, Dominus and a bull calf.

Two fat cattle fed by Mr. J. Russell, of Pickering, Ont., were sold for the English market, and weighed the enormous weight of 5,000 lbs., being 2,600 and 2,400 lbs. respectively. It took two days for them to walk to the shipping station, a distance of about seven miles. The buyer found there was only one beast in Canada heavier, and in order to beat it, he agreed with Mr. Russell to take the beeves back and breed them for another year, at \$9 per month.

A consignment of pedigree stock was shipped from Liverpool for Quebec, June 6th, by Mr. Simon Beattie, of Annan, Scotland, consisting of 8 entire horses and 3 fillies, all Clydesdales of various ages. Some of these animals are to remain in Ontario, while others are to go to the U. S. Also a number of sheep made up as follows: 62 Cotswolds one and two years old, there being 45 ewes and 17 rams; in Oxford-Downs, 2 two-shear rams, 1 one-shear ram, 13 ewes; in Shropshire-Downs, 19 rams and 26 ewes.

The entries for the Metropolitan (English) Short-horn and Jersey show and sale, held at the Agricultural Hall, London, on the 16th and 17th, closed on the 8th inst. Two hundred entries were received, including representatives of celebrated Short-horn and Jersey herds; also several lots of Kerry and Ayrshire cattle. The Duke of Devonshire and Viscount Combermere offer cups in the Short-horn classes, and two cups will also be given for Jerseys.

An International Exhibition of sheep and wool is to be held at Philadelphia, next September. Pennsylvania is centrally and conveniently situated for such an exhibition. Her farmers are awakening to the importance of sheep husbandry. One of her counties, Washington, has "over 400,000 sheep, producing as good Merino wool as there is in the world." The main Centennial building, the grandest and most appropriate structure for the holding of the proposed exhibition, has been engaged for the purpose, and sufficient funds for the payment of all expenses, including a liberal and attractive list of premiums, have been secured.

HORSES FOR MANITOBA.—The Montreal Journal of Commerce says: The business of shipping horses to Manitoba is attracting a good deal of interest in the vicinity of Dundas, Ont. The horses are bought up at \$80 to \$100, according to report, and sell readily, on reaching their destination, at \$140 to \$150. What margin of profit this leaves cannot be definitely stated, the dealers themselves naturally claiming that it is very small, but the eagerness with which the business is pursued plainly indicates that the results are as a rule highly satisfactory. One firm extensively engaged in this business enjoys the advantage of having a special agent at Winnipeg who keeps them informed of the state of the market, so that shipments may be made when the time seems propitious. The business extends to cattle and poultry, and is latterly, it is thought, in some danger of being overdone through too rapid expansion.

The Royal Agricultural Show of England is to take place this month at Carlisle, where about \$27,500 will be offered in premiums.

Jas. Coutts, sr., and his son, of the township of Sutton, died recently through having come into contact with glanders from which a horse belonging to the former was suffering. Animals affected with farcy or glanders are very dangerous to operate on, the diseases being infectious, and a cure is seldom effected.

Commercial.

FARMER'S ADVOCATE OFFICE, London, June 26, 1880.

The month of June on the whole has been a most favorable one for the growing crops.

WHEAT.

This article has been extremely dull the past month, so much so that there has been very little business done, and what little has transpired has been of a forced character.

Every thing points to still lower prices, and if the present crop prospects continue as favorable as they are now from all parts of the world, we can only look for very low prices when the new crop commences to move freely.

BARLEY.

It is thought that the repeal of the malt tax in Great Britain will not be without some good effects here, as large quantities of Canadian barley which are not good enough to convert into malt for beer-brewing, will in all probability be required for feed malt.

Our barley is already preferred in England, to Salonica and Black Sea barley, in the manufacture of black malt for porter-brewing, and now that a new market will be opened up for the Canadian product by the abolition of the English malt duty, farmers here should reap the benefit of enhanced values for a class of barley which hitherto has been difficult to sell.

CHEESE.

This article is in a very uncertain state at present, and prices are tumbling very rapidly. Private cables report the market in Liverpool as completely demoralized and likely to go to 45s.

BUTTER.

Has also declined seriously, in Liverpool the past few days there being a decline of 1 per cent.

The following remarks taken from the Montreal Gazette are so applicable to the situation that we reprint them here :-

Considering the good prices that are at present obtainable for butter we think farmers are making a serious mistake in not selling freely, and in this opinion we have precedent on our side.

prices which prevailed; consequently the sale of fall stocks was not hampered by a heavy supply of summer-made butter, as had frequently been the case in former seasons.

London Markets.

London, June 30, 1880.

Table with columns for GRAIN, PRODUCE, HAY AND STRAW, and FLOUR, listing various commodities and their prices.

Liverpool Market.

Liverpool, June 28.

Flour—10s 0d to 12s 0d. Wheat—Spring, 8s 6d to 9s 4d; red winter, 9s 6d to 9s 10d; white, 8s 6d to 9s 8d; club, 9s 6d to 10s 0d.

Montreal Market.

Montreal, June 29.

Markets dull and without demand. Flour—XX, \$5 30 to \$5 35; fancy, \$5 10; spring extras \$6 20 to \$6 30; superfine, \$1 95 to \$5 05; strong bakers, \$5 90 to \$6 30; fine, \$4 50 to \$4 65; middlings, \$4 to \$4 10; Ontario bags, \$2 65 to \$2 75; City Bags, \$3 00 to \$3 15; Oatmeal, \$4 35 to \$4 40.

Toronto Market.

June 29.

Wheat—Fall, \$1 to \$1 08; spring, \$1 to \$1 10. Barley, No 1 60c; No 2 50c; No 3 40c. Peas, 68c. Oats, 30c to 36c. Corn, 53c to 54c; Flour, superior, \$4 90; extra, \$4 80; fancy, \$4 75; strong bakers' \$5 00. Hogs, \$9 50 to \$6 75. Butter, 10c to 14c. Oatmeal, \$3 90 to \$4.

New York Markets.

New York, June 28.—Wheat—spring, winter and white, a shade stronger; red, cash and June, heavy, and others a shade better and quiet; sales at \$1 06 to \$1 29. Corn 47c to 50c. Barley, dull and nominal. Oats 31c to 37c, for mixed western and state; 31c to 40c for white do. Pork, weak, and unchanged in price. Cheese quoted at 6c to 8c. Dressed hogs, 8c to 9c.

Chicago Market.

Chicago, June 28.—Wheat, 82c to 88c. Oats, 25c to 24c. Barley, 74c. Lard, \$8 65. Bulk meats in good demand and tending upwards; shoulders quoted at \$4 65; short ribs at \$6 70; short clear at \$7. Hog market—New grades, \$4 10 to \$4 25; mixed packers, \$4 10 to \$4 30. Heavy shipping, \$4 20 to \$4 45.

Cheese.

Utica, N. Y., June 28.—7,400 boxes of cheese were sold today at 6c to 7c, largest number at 7c. Little Falls, N. Y., June 28.—Market very dull; decline 2c; for sales of 1,200 boxes factory cheese, 6c to 7c, bulk at 7c; 750 boxes from dairy at 5c to 7c.

Montreal Cattle Market.

Montreal, June 29th.—At St. Gabriel's Market the prices quoted for cattle were, 4, 4 1/2 and 5 cents per pound; there was one sale at 6 cents; two oxen were sold at \$120, a milch cow at \$44,—seven hogs of 300 pounds weight were sold at 5 cents per pound, other hogs of about the same weight at 4 1/2 cents.

The Globe Lightning Rod Co.

In our last number the name Ontario Lightning Rod Co. was confused with the Globe L. R. Co. of this city, whose advertisement appears in the usual column. The Ontario, we find on enquiry, belonged to Hamilton, Ont., and suspended some time ago. The Globe, on the contrary, is sound, and has some of London's best citizens for Directors.

W. Bell & Co., of Guelph, Ont., have been awarded the only prize gold medal for their organ at the Australian Exhibition, beating English and American organs. Well done, Canada!

We are indebted to Mr. Wm. Saunders, Editor of the Canadian Entomologist, for the use of the cuts of the Army Worm and Tomato Worm.

The annual exhibition of the North Lanark Agricultural Society will take place at Almonte, Ont., on the 6th and 7th October next.

The attention of our readers is directed to the advertisement of the Brown Memorial Committee in the usual column. We trust all classes will respond with spirit and liberality to the memory of one who did what he always believed to be right without fear or favor.

Any subscriber may become our agent. Postmasters are requested to act as our agents. A cash commission of twenty-five cents will be allowed for each new subscriber paid for one year, sent in singly. Increased commission for ten new subscribers and over. Our new premium list will appear shortly, and will be found liberal and attractive. One name or a dozen may be forwarded at any time. Subscriptions can commence with any number of the ADVOCATE.

NEW ADVERTISEMENTS.

THE HAY LOADER.



Advantages of the Use of the Hay Loader.

It saves as much manual labor as the mowing machine or horse rake. It requires no extra man or horse, and the draft when in operation is hardly perceptible. It can load one ton of hay in five minutes. It can be used in heavy, unranked hay, or for windrows. You can save double the quantity of hay in the same time by using the loader. It can be instantly attached or detached to a wagon.

For price and particulars address THOMAS BROWN & CO., 174-4 INGERHOLL, ONT.

Brown Memorial Committee.

Chairman, John Macdonald; Treasurer, David Blain; Secretary, J. D. Edgar.
Office, No. 1, Masonic Hall, Toronto street.

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Toronto, June 5th, 1880. 175-a

Incorporated 1878. Capital Stock \$50,000.

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This shows a dwelling properly protected.
LIGHTNING ROD COMPANY.
Special attention given to the erection of Rods on Churches, School-houses, Halls, and other Public Buildings. Address all communications 494 King street east, London, Ontario. All work guaranteed. 175-c

CIDER MILLS.

Do not fail to send for our new illustrated list of Cider Mills.
WE HAVE IT!
JUST WHAT HAS BEEN NEEDED.
YOU WANT IT.

A Cider Mill that will grind sixty bushels apples per hour, and a Press that will press seventy-five gallons at a pressing; designed for Hand or Power.

Also, our new one-horse power Mill. This cannot be beat. A one-horse Sweep Mill that will grind sixty to seventy bushels per hour: Power and Mill all combined. You can take it right into your orchards and make your cider. Do not fail to see it before buying. Manufactured by the
HIGGANUM MANUFACT'G CORPORATION,
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Also manufacturers of Agricultural Implements of every description. 175-tf

Rubber Paint

ALWAYS USE THE BEST!

The Rubber Paint is Durable, Elastic, Economical, and will resist water better than any other paint manufactured.
Good for either inside or outside painting
Send for circulars to
The **CANADIAN AGRICULTURAL EMPORIUM,**
360 Richmond-St., LONDON, ONT.

N. ANDERSON, M. D., M. C. P. S., Ont.—Eye, Ear and Ear Surgeon. 34 James-St., Hamilton, Ont.



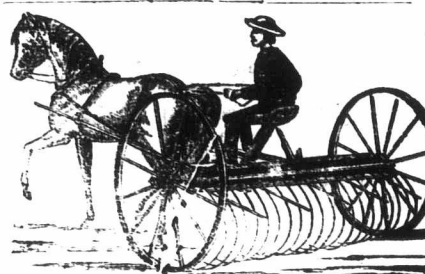
Dr. Anderson gives EXCLUSIVE ATTENTION To the Treatment of the various diseases of the
EYE AND EAR
Cross Eyes Straightened.

FALL WHEAT.

Parties having any new varieties of Fall Wheat for sale, will please send samples and prices, with particulars of growth, hardiness, productiveness, etc., to
The **CANADIAN AGRICULTURAL EMPORIUM,**
360 Richmond Street, LONDON, ONT. 175-tf

NOTICE TO THRESHERS

WE would advise farmers and others not to purchase until they have seen White's Improved Portable Farm Engine, made at the Forest City Machine Works, London, Ont.
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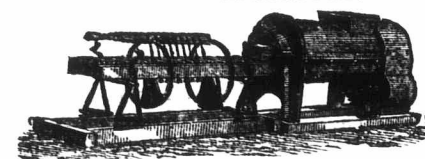
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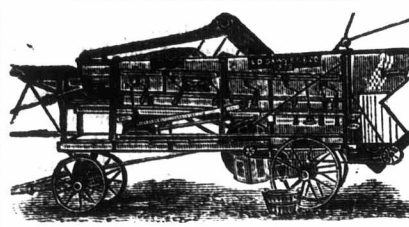
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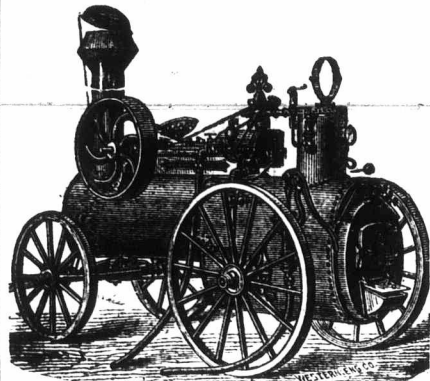
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