FARMER'S ADVOCATE

AND HOME MAGAZINE.

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THE FARMER'S ADVOCATE & HOME MAGAZINE

WILLIAM WELD, EDITOR AND PROPRIETOR.

THE LEADING AGRICULTURAL JOURNAL PUBLISHED IN THE DOMINION.

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

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Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

1.—No award will be made unless one essay at least comes up to the standard for publication.

2.—It is not necessary for essayists to agree with our policy, so long as they give sound reasons for differing from us.

3.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.

4.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, the sum being decided by ourselves in each case, and the essay will appear in the same or in a succeeding issue.

A prize of $5.00 will be given for the best original essay on *How to Regulate Fall Work on the Farm most Profitably.* Essays to be handed in not later than Sept. 15th.

A prize of $5.00 will be given for the best original essay on *How can Greater Economy be Exercised in the Use of Fences?* Essays to be handed in not later than Oct. 15.

Our prize of $5.00, offered for the best original essay on the following subject: *On what Basis can the Middlesex Agricultural Council and Our Farmers most Harmoniously Co operate for the Best Interests of Agriculture?* has been awarded to W. E. Marshall, St. Mary's, Ont. The essay appears in this issue.

Editorial.

On the Wing.

Aug. 16.—It is now one week since we returned from what appears to us the most important trip we have ever taken. Having been absent for over three months, it is hard to buckle into harness again, and to separate from the numerous sights we have seen and sounds we have heard that which may be of some importance or interest to you, and condense it into a suitable space for this journal.

During this trip we have seen a little of Scotland, Ireland and Wales; we had never been there before. We have also seen more of England than ever before, and trust that we may be able to deduce from our observations some remarks that may tend to your benefit, and be read with interest during the coming winter months. We visited the Royal Agricultural Exhibition of England, the Agricultural Exhibition of Edinburgh, and the International Exhibitions being held at Edinburgh and at Liverpool. But the most important of all was the Indian and Colonial Exhibition in London. This exhibition will prove of more moment to the British Empire than any exhibition that has yet taken place, the object being to unite Great Britain and her colonies together in stronger bonds of harmony, and to act in conjunction for our mutual benefit and advancement.

We were present at the opening, which was the first public acknowledgment from our gracious Queen. When entering the Canadian Court her face was slightly turned towards the position we occupied, giving us a better opportunity of seeing her face than we ever had before. We thought she looked better than we had seen her represented by any of the likenesses published. Our artist prepared the scene which you may find by referring to our August issue. In that issue you may also see the idea of the mechanic preparing the tire to bind all the colonies into the great hub, Britain. We hope that tire may be made of suitable material. Perhaps you may be able to add material that might strengthen it. Think what it should be made of; can you strengthen it in any way? Is it desirable that it should be strengthened? Is there any more honorable or just government in the world, or a better, more substantial, or more just form of government existing? If there is, let us hear of it. If not, let us try and support and improve the country that waves our native or adopted flag

We were present at the first gathering or banquet gotten up by the colonists; also at the first emigration meeting, at which the Marquis of Lorne occupied the chair. The Secretary and other speakers addressed the meeting. The most sympathetic chords were struck when Miss Rye made a few short and telling remarks about her missions among the poor and the success that was attending her efforts in taking children to Canada, thus benefiting the country they leave and placing them in comfortable homes, where there is a possibility of their becoming useful members of society and a blessing to the country to which they go, and to themselves. There may be some failures, but youth is the best time to emigrate.

On the 26th of July we attended the first meeting of the Colonial Commercial Exchange. Mr. C. S. Stephen occupied the chair, and a very efficient chairman he makes. A large number of the Canadian exhibitors were present, and a lively interest was evinced. These gatherings will, we have no doubt, result in good. Every attention will be given to devising and carrying out plans that may be considered beneficial to both Great Britain and her colonies.

THE CANADIAN TROPHY.

Some of our sister colonies may have devoted more means and attention to the preparation for this exhibition than Canada did at first, and made very highly creditable displays; but latterly Canada's reputation as an exhibitor very materially improved, and after walking over the exhibition several times, we concluded that the most important part to Canada and perhaps to the nation is centered at and around the Canadian Trophy, a view of which our artist has made from what we considered the most important parts and connections which could be taken at one view. See next page.

In the foreground is seen the cheese trophy exhibited by Mr. T. D. Millar, of Ingersoll. Mr. Millar carried off the highest awards given to Canadian cheese at Antwerp. The dairy interest is one of immense importance in Ontario; it bids fair to excel other interests, as it is rapidly increasing in importance and in the quantity of produce exported. Canadian dairymen consider they are now in advance of any others in the cheese department; that they are prepared to make any class of cheese that may be required. Dairying is a safe and profitable business; all who understand it are doing well. London and Belleville are the two great centres for cheese manufacture in Ontario, and Danville and Montreal in Quebec. On the top of the cheese trophy is a golden cow and calf.

To the right of the cheese trophy is part of the Manitoba and Northwest exhibit, probably the most important part of which is the large number of glass tubes that may be seen standing by it, containing soils taken from our prairies. It delighted and astonished farmers to see such a depth of inexhaustible soil. The products of the soil are also shown in the cereals, grasses, roots, etc. In the background you see one of the four corners of the arches that support the most important Canadian trophy. Around the foundation may be seen specimens of our minerals, timbers and bags of cereals. Above that are about 1,000 glass jars containing samples of our different varieties of fruits, preserved in a liquid. This is a very attractive and important part of our exhibit, as Nova Scotia and part of Quebec and nearly the whole of Ontario are capable of raising apples so much cheaper and better than they can be raised in Europe, that it is expected the trade committee will make such arrangements that our Canadian apples will be in a greatly increased demand in Great Britain, and even in other parts of Europe, and that a great impetus will be given by this means to increase the supply of apples and other fruits in Canada. Above the fruit are garlands, wreaths and specimens of cereals, above which are some farm implements and sheaves of grain, grasses, hops, etc., and a bale of hay with the scythes crossed on it. Here the dairy products are exhibited in cans, tubs, firkins and boxes, and also the wool, meat, vegetables, fish, sugars, honey, molasses, syrups, dried fruits, etc. Above this the flour barrel, cheese and meats may be seen in the centre. At each corner are pyramids of our canned goods, fruits, vegetables, etc.; cereals, grasses, etc., are waving at each corner.

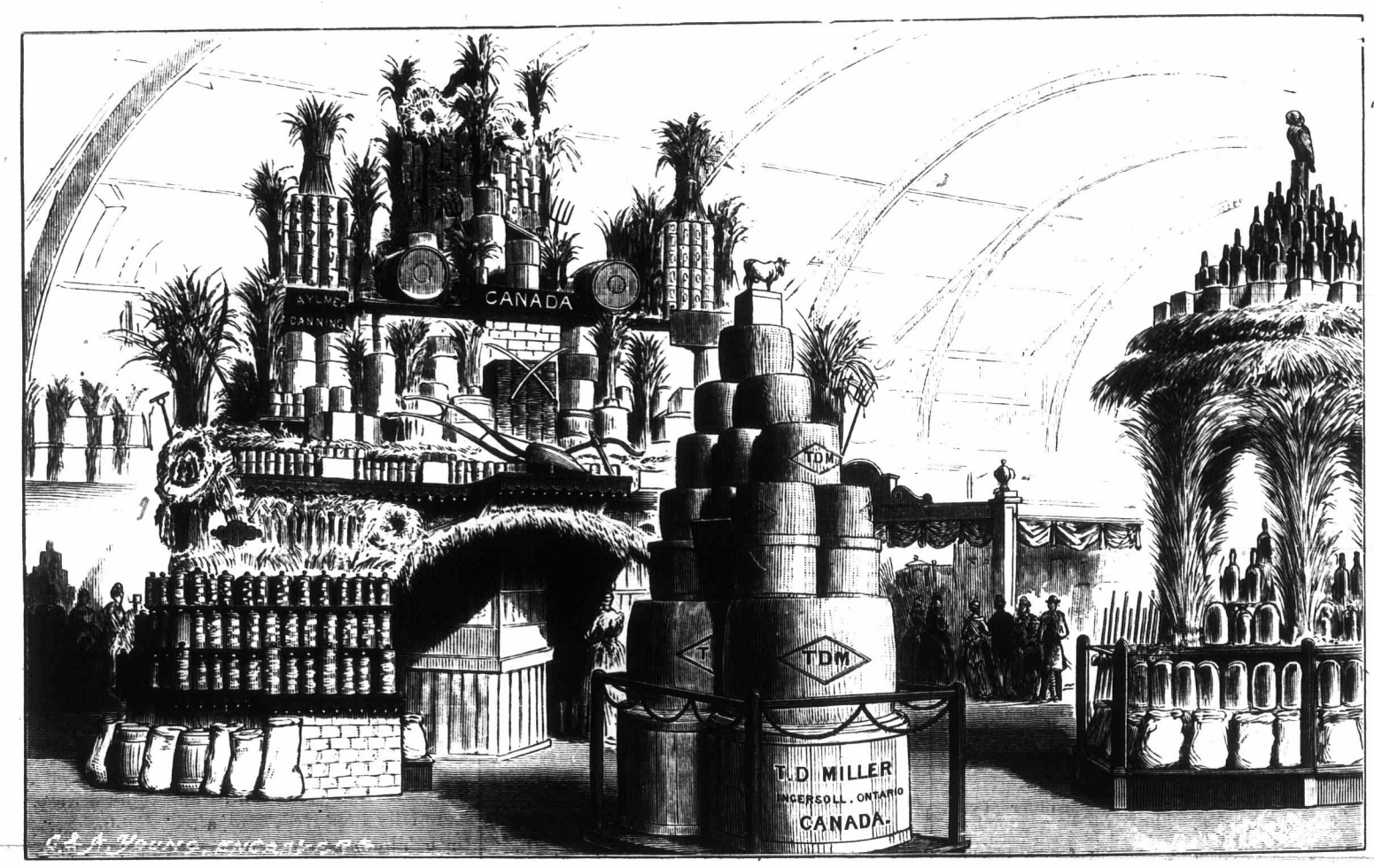
Beyond the trophy the commencement of the exhibit of our musical instruments commences, and in addition to the melodious notes of the instruments, the beauties of our Canadian timbers are better shown in some of the musical instruments than in our special wood exhibit. They should be seen by all, because the Canadian wood in some of the instruments exhibited from this country compares favorably with any grown in the tropics or any other part of the world.

Near this trophy we met Prof. W. Saunders, of this city. Every person accords him the highest award of merit for his care in selecting, preserving and arranging the fruit exhibit, and for his courteous and candid information about it. Mr. C. R. H. Starr, of Nova Scotia, may also be seen here ready to respond to enquiries about our fruit resources. Captain Clark, of Winnipeg, Manitoba, is also found in his seat here distributing emigration literature and furnishing the inquirer with full information about Manitoba and the Northwest, gained from practical experience.

The immense numbers attending this exhibition, and the amount of information disseminated by means of pamphlets and verbally, must tend to dispel some of the ignorance prevailing in Britain in regard to Canada—we say ignorance because the erroneous impressions that have such a foothold about the severity of a Canadian winter, have been so enormously magnified in their minds that it is hard to make them believe the truth.

Many of our exhibitors have already sold all of their exhibits, and some have taken very extensive orders for further supplies. Preparations are being made to ship a supply of cheese to be sold in the Canadian market.

The choicest fruits and vegetables are to be selected at some of our principal exhibitions, and from localities where a good supply of a good quality can be procured. A large special exhibit is to be made. The names of donors are to be labelled on their exhibits, and the fruits purchased are to be disposed of to defray expenses. Persons having any quantity of good grapes or other choice fruit, might now open up such a trade as they have not dreamed of, as Canada can raise grapes and apples of a finer quality, and at about one-quarter of the cost they can be raised for in England.



CANADIAN TROPHY AT THE COLONIAL EXHIBITION.

The Cheese Trophy standing in front obstructs part of the view of the other corners. At the base the timbers, cereals and minerals may be seen; then rows of about 1000 jars of Canadian fruit; above, grasses, cereals, implements, butter, flour, cheese, dried meats, canned goods, dried fish, and in fact a representation of nearly all our products, of which the illustration can only give a very poor and meagre idea of its beauty and importance. The third small trophy seen to the right is the Manitoba and Northwest exhibit.

This year we have seen an unusual quantity of smut, or black heads, in the corn fields. We would recommend that these should all be taken off, removed from the field and destroyed. The spores are apt to remain in the ground a long time if they are not destroyed.

We have heard of no new wheat, or seed, or plant that we feel justified in recommending to you for this fall's sowing.

More about Contagious Diseases in Our Stock.

Duty again calls us to touch on this, to us, one of the most humiliating subjects. At the quarantine at Point Levis, Quebec, a large number of imported animals have, during the past month, been slaughtered and cremated, having contracted pleuro-pneumonia. The Government has now taken prompt measures to prevent its spreading in Canada. The cost of this will probably amount to a very large sum, but that is nothing in comparison with the millions of loss that Canada must sustain if the disease is allowed to spread. Our motto has always been and still is: "Prevention is better than cure."

We have on previous occasions shown the inefficiency of our quarantines, and we have previously suggested that the importation of cattle and swine should be prohibited; and the sequel has proved our opinions to be correct. We would ask any one to estimate the loss that our farmers and Canada have already sustained by allowing diseased cattle and swine to be imported, and to consider what great danger we are incurring by continuing in this course. Temporary prohibition would give us a chance to redeem our former reputation, and enable us to proclaim again that Canada is free from all contagious stock diseases. Now we will further state that despite this slaughter and cremation, we have no confidence in our quarantines, as we saw them conducted, being able to prevent the introduction and spread of disease in our country, but look on them rather as hotbeds for the propagation of disease. The loss to the farmers and to the Dominion is too often of little consequence when individuals or combined organizations are to be served, whose sole aim is the accumulation of money at all hazards. We do not make these observations in disparagement of genuine importers or breeders who have the improvement of our stock at heart.

Question—Have cattle—from which this disease has sprung, and for which the country has to pay, not only for slaughtering and cremating, but the owners must also be remunerated out of the public funds — been imported for the benefit of Canadian farmers, or for the benefit of manipulators, to enable them to make money by shipping these very cattle to the States? It is now fairly admitted by real practical farmers that we already have in Canada just as good stock as we can import, and that the best of ours is taken to other places, where they bring just as good prices as any other stock. We know a few influential stock manipulators have immense influence with our legislators, and we know the practical farmers are not properly represented because they are not organized, and therefore cannot lobby their interests through legislative bodies in the manner that monopolists can. Such a strict quarantine system should at once be adopted as would make further importations of diseased animals practically impossible; as by importing these contagious diseases we are liable to have our whole country infected, and the loss of our reputation for having healthy stock would lower the prices of our stock, cheese and butter to an alarming extent, most probably for all time to come. A good reputation once lost can hardly be regained. We say, spare nothing to stay the progress and prevent further danger both in regard to the disease in cattle and swine.

The Farm.

PRIZE ESSAY.

On what Basis can the Middlesex Agricultural Council and Our Farmers most Harmoniously Co-operate for the Best Interests of Agriculture?

BY W. E. MARSHALL, ST. MARY'S, ONT.

In no calling do liberal study and varied experience give better results than in agriculture, and probably in none is there more carelessness and lack of system.

We have made rapid advances in these respects during the past few years, but there still exists a necessity for more insight and keener interest in our work. These facts have been recognized by the founders of the Ontario Agricultural College and Experimental Farm, and the promoters of the system of experimental stations which the Dominion Government purposes establishing.

Undoubtedly our Agricultural College has done much good in training young farmers and giving them an insight into the science of agriculture, which they could obtain in no other way. It has also by its experimental system realized, in some measure at least, its object, by disseminating a great deal of useful information; but it is a question whether the good being done by the institution is proportioned to the outlay in connection with it.

The proposed system of experimental stations will be a still more expensive, and, I think, a less profitable undertaking. It will also be open to the objection of liability to political influence.

Comparatively few farmers know anything of the work done at the Model Farm, for few read and profit by its reports, and possibly a less degree of success awaits the new system.

Now let us see if the Middlesex Agricultural Council could be put on such a basis that it would do the work intended to be done by these institutions, or that part of it which is most practical and useful. I think it could accomplish as much or more real good with a vast deal less expense.

We learn more from our own experience, and that of those with whom we often come into contact, than in any other way. Let the Middlesex Agricultural Council be constituted a sort of central agency for the collection and dissemination of experimental knowledge among the farmers, and let it co-operate with them through branch organizations established, say, one in each township. Each of these organizations should hold meetings monthly, at which topics of general interest could be discussed, each member taking part in the discussion, and giving all the rest the benefit of his experience. Reports could be sent to the Council for publication of all matter of general interest. Twice or oftener each year a series of experiments could be arranged by the Council or by a committee appointed for the purpose, and a report sent to each branch; the members would then decide among themselves who should perform the different experiments and report as accurately as possible all details and the results.

This method would do much to get us out of the hap-hazard way so many have of blundering along, regardless of system, and in total ignorance as to the profit or loss in any manner of cropping or feeding.

The experiments should consist of tests of various cereals under different circumstances, of various kinds of feeds and systems of feeding, of methods of management of milk, butter, etc., and of any matters of general interest. Reports from the different organizations would be collected, arranged and published.

Other central organizations might be formed for different districts or Provinces, and by working through branch societies reach almost the whole farming community.

By these means we should become more interested in our work, form systematic habits of doing it, and learn to compute the profit or loss in every scheme.

Value and Uses of Rye.

There is no crop on the farm that can be turned into a greater variety of uses than rye, and it fills some positions not easily attained by any other crop. Although best adapted to light soils, it will flourish almost anywhere, and will often grow where other crops fail. It is excellent for soiling, for early and late pasturage, for green manuring, and for sowing with grass seeds as a protection. It cannot be excelled in sheep husbandry, where the flock may be inclosed by means of hurdles on poor patches of soil sown to rye. Here they can graze in late fall and early spring, or, indeed, in any season of the year, at the same time being fed with rich, concentrated foods; there is no better means of improving a poor soil. Another plan is to soil the sheep with rye, instead of pasturing as just mentioned. Sheep are preferable to cattle for such a purpose, for their rich droppings, which is the great source of fertility, are more evenly distributed over the land than those of cattle.

The soiling system cannot be complete without the use of rye. It may be sown early or late in the fall; when sown early, it affords excellent pasturage or soiling before the freezing season sets in, and it will grow again early in the spring, making a luxuriant pasture before the grass is fit to be grazed, but it should not be grazed or mown too close late in the fall. It is also a good plan to run over the field in the fall with the mower, leaving the mowings evenly distributed over the surface. The tramping of the stock does not seem to injure rye as much as it does other crops. As a soiler it comes in early in spring before any other soiling crop, and it can be so utilized late in the fall. But it is not so nutritious as some other soiling crops, notably peas and clover, and should not be fed alone for any appreciable length of time, especially in early spring and late fall. For green manuring, its usefulness is unrivalled on soils which are not adapted to clover. It may be pastured until the middle of June, after which it may be allowed to grow for a month or two, and then plowed under.

For early fall sowing, three to four pecks per acre will be sufficient, but, when sown late, another peck should be added.

Rye may thus be made to pay without the use of the grain, although flour made therefrom makes excellent bread, and should not be wanting on any farmer's table.

Swindlers Amongst our Farmers.

During stringent times the incentive to obtain money under false representations becomes specially strong, and the classes of the community which are least organized to protect their interests are most liable to become the greatest dupes. In earlier times, when wealth was mainly confined to the great centres of population, swindling in rural districts was little known; but now, our wealth being more widely distributed, the temptation to ply nefarious trades outside the suburbs of cities becomes proportionably great.

The country is now swarming with agents in all departments of trade, some being reputable and others disreputable, and it is not always possible for the farmer to draw a sharp line between the two extremes. In the absence of organization, his best plan is to become acquainted, through the press or otherwise, with the reputable suppliers of all his wants, dealing directly with them, and refuse to enter into any transactions with those who are not duly credentialed as their representatives. It is the policy of many smooth-tongued agents to complicate matters beyond legitimate bounds, and then attempt to force the farmer's signature to documents which he does not clearly comprehend. Such is the character of many documents signed by farmers, being sufficiently verbose to guard the agents or their supposed principals from liability under the bonds.

Canadian Grains at the Colonial Exhibition.

Prof. John Macoun, the distinguished Canadian botanist, and author of a work on "Manitoba and the Great North-west," is at the Colonial Exhibition and is in charge of the botanical and natural history department. He has been interviewed on various questions relating to the department under his control, and the following observations of his appear in the Farmer's Gazette:

"It is unquestionably *the* display from the Dominion. The grasses and grains are excellent. You will see here some first-rate samples of the hard wheats of the North-west. And people should know why they are hard. It is not due to the variety, but entirely to climatic influences. If you sow a soft variety of wheat in the North west, you will find it turn out a flinty grain, for the absence of moisture and general dryness of the autumn necessarily make it so. You will notice also in the North-west samples as many as three and four grains to the fascicle, and if we had samples from as far north-west as latitudes 56 to 59, you would find five and six to the fascicle. In Ontario samples you will find but two. Hence in the North-west the wheat yield of a fair field rises to so high an average. Ontario, Nova Scotia, Eastern Canada generally, and British Columbia, have also a good collection of their wheats on exhibit. Some of the Quebec samples—especially those from Little Metis—you will find wonderfully like the wheat growth of Manitoba; indeed I find that the wheat grown in Nova Scotia and Northern Quebec much more largely partakes of North-western characteristics than the growth of Ontario. Then we have good winter wheat from Nova Scotia, New Brunswick, Quebec, and Ontario, but not from the North-west, for practically none is grown there."

With regard to the possibility of great development in the export trade in Canadian wheats, the professor thinks that depends upon circumstances. "If it can be shown beyond question (he said) that wheat can be sent across the Atlantic without imbibing moisture on the voyage, then there is; but that has to be proved. The very essential feature of the North-west grain is, of course, its hardness, and the admission of any moisture must lessen, if not destroy its superior value. I have my fears as to the possibility of excluding moisture, unless, of course, the grain were shipped in hermetically sealed tanks, and I am therefore inclined rather to look to the export flour than to the export wheat trade, the grain being ground in the North-west itself. There is no question as to the possible milling facilities there. Look at Rat Portage, on the Lake of the Woods, midway between Port Arthur and Winnipeg. It is directly on the main line of railway from the North-west to the seaboard, and possesses water power and natural facilities second not even to those of Minneapolis. As to the demand for the flour here, there can, I think, be no doubt whatever on that score. It is flour of great strength, and will take therefore a great deal of water. This is, of course, of great importance to the baker, for he can obviously make so many more loaves to the sack of flour.

"The barleys and oats of Canada are also well represented. We have specially fine samples of barley from Eastern Canada, whence the Americans get large quantities for their malting. They prefer it, indeed, to their own, from the fact that it is grown farther north, where we find in happy combination the two great essentials to good barley—moisture and coolness. Hence, a large part of the North-west is, I think, too dry for first-rate barley growth. You will see that most of the samples shown from the North-west are poor as compared, for instance, with the growth of Eastern Canada. But, in addition to the North-western wheat lands, to which this remark applies, there are at least 100,000,000 acres in the North-west outside the limit of successful wheat growth that will yield enormous crops of barley. The barley of the Peace River district, in latitude 58, will weigh 57 lb. to the bushel, and was declared by the American authorities at the Philadelphia Exhibition to be 'as fine as the fattest of English barley.' Then there is the Saskatchewan Valley, and round Prince Albert, and away to the north—this is the real home of the barley. Much the same applies to oats, which are grown all over Canada, but in better form towards the north than the south. There is a fine collection of oatmeals in this minor trophy, prepared by one Canadian firm; and it is very clear that the use of the meal is largely extending among the people of Canada. Then the peas shown are excellent, particularly those from Ontario, where we have limestone soils well suited to their growth. The North-west will also, I believe, be noted for its growth of peas; for the ground there is full of lime and gypsum, and well suited therefore to leguminous plants.

"Then we have also good samples of flax here from the North-west, and I maintain that this is prospectively one of the best products of the North-west; for its possibility of growth is practically inexhaustible. Its culture is extending, and will, I hope, extend even more rapidly in the near future. The fibre of the plant is of the very best quality for the making of paper and other material, and its growth will, I firmly believe, open up a great manufacturing future for parts of the North-west in the supply of such hemp as now comes to England in such quantities from Eastern Russia, to which the Canadian North-west is climatically similar."

Harvesting and Storing Potatoes.

Potatoes cannot be dug too soon after the tops wilt, providing the weather is favorable; but if the weather is damp, it is better to let them lie a while than to harvest them. A plow or a potato digger is the best harvester in ordinary field culture, where 150 to 200 bushels per acre is considered a good average crop, but under a more intensive system of culture, where 500 to 600 bushels per acre are frequently obtained, nothing surpasses the potato fork for clean and quick harvesting. One special advantage of the fork is that, when a good hill is found containing a large number of medium-sized potatoes, these can easily be set apart for seed. Very few farmers are aware of the immense advantages to be derived from selecting seed potatoes in this manner.

Of the two methods of storage, the pit and the cellar, each has its advantages and disadvantages. Potatoes stored in the cellar are handier and safer, as a rule, than those stored in pits; but when success is completely attained in the pit, the potatoes come out fresher and better flavored than those kept in the cellar. Potatoes should be put in the cellar if the weather does not permit their being thoroughly dried after harvesting; but care must then be taken that they secure thorough ventilation and a low temperature, being also turned occasionally, especially if they are placed in deep heaps.

In preserving potatoes in pits, various points should be observed, amongst which may be mentioned the prevention of dampness, frost, heat, and premature germination, and the method of pitting which will secure these ends will be the best. Dampness, in the first place, is prevented by putting them away in a dry condition, and secondly by preventing the ingress of moisture. The latter is secured (1) by thorough drainage about the pit, and (2) by warding off the rain. Heat and moisture cause germination, fermentation, and rot. Sprouted potatoes are neither so nutritious nor palatable for food, nor so productive for seed. The direct heat of the sun should not descend upon potatoes, while being harvested, for any considerable length of time; this impairs their flavor, but improves them for seed. Potatoes for sale or for table use should therefore be placed in small piles shortly after being dug, and covered with straw or potato tops. Here, in favorable weather, they will be kept in the best condition for pitting.

It is very improbable that the common practice of covering potatoes is the best method. Even being placed in heaps when dry, potatoes give off heat and moisture which are absorbed by the straw that is usually placed over the pile. It is true that this heat and moisture can be carried off by proper ventilation, but it is questionable if this is the best method. Based upon these principles, three experiments

have been tried with complete success: (1) Covering with soil alone, without straw, but with ventilation; (2) covering with soil alone without ventilation, and (3) scattering absorbents amongst the potatoes while being pitted, using nothing but soil as a covering, without ventilation.

The objection to the use of straw is that it often gets so damp that it causes the potatoes to rot. Where no straw is used the soil absorbs the heat and moisture which are finally given off through the pores of soil, and, if the covering is not too thick, every pore in the soil is a good ventilator. On this basis, it is desirable to put on a thin covering of soil until frosty weather sets in; if the pit is made as steep as possible, there will be no danger of rain penetrating it. In using absorbents amongst the potatoes, dry ashes have proved beneficial; but there is no reason for raising an objection to lime, plaster, or salt, or any mixture thereof, although we have never seen experiments tried with these absorbents. If straw is used at all, it is better to put on a thin covering of dry earth first, and, as soon as cold weather sets in, put on a covering of straw and a final covering of soil.

Analyzing Soils.

We are in receipt of the following letter from a subscriber:—

SIR,—Would you be kind enough to analyze a little box of earth if I express it to you and tell me what it is deficient in, the best fertilizer you know of to use on such land, and where to get it? I have about thirty acres which are poor, and I thought if I could get a fertilizer which would bring it up so that I could get a crop of fall wheat from it and then seed it down to clover, it would be the best thing I could do with it.—G. G., Amherstburg, Ont.

We are pleased to find that farmers are beginning to take interest in such matters. We are constantly receiving inquiries of a similar nature, which we answer through our correspondence columns, but we desire to give special prominence to the above communication in the hope that a greater number of our readers will be benefited by a more comprehensive exposition of the subject.

The first question to be decided is, What have soil analyses accomplished for our farmers? Not much, if we depend upon the analysis alone; but if the analysis corroborates all the other evidence, it is all that can be expected of it at present. If it clashes with the other evidences, very little practical good can result. Some soil analyses have proved a success; others a failure. The chemist can find the percentage of the leading constituents of plant food, the extent of their solubility, and whether there are any ingredients injurious to plant growth; but there are certain constituents required by the plant, which may exist in such small quantities as to escape the analyst's notice, in which case some plants might flourish and others not.

If everything depended upon the chemical composition of the soil, analysis would be a much greater success; but we find that there are *physical* properties which cannot be overlooked. A condition may arise in which a soil which contains the greater percentage of plant food may produce worse crops than that which contains the less. For instance, a clay soil has great retentive power and can easily retain much more plant food than the crop requires, but it may be so stiff and so wet or dry as to be almost barren. Again, if the season is unfavorable, no amount of fertility can satisfy the demands of the crop. Another serious hindrance to the analyst's occupation is the difficulty in finding a proper solvent to test the solubility of the plant food. He can tell what percentage is soluble in water and in the various acids, but he does not yet know what degree of solubility the plant demands. It is well known that the roots attack insoluble matter and make its food available, the roots of some plants being greater assailants than those of others, so that the analyst is still at a loss to know just how soluble the plant food should be in every instance. However, it is believed that the plant food which is soluble in hydrochloric acid can easily be made available by the roots, but this standard is, at least, only approximate. The soil and subsoil vary so much in the same field that it is difficult to get a handful for analysis which may be taken as the average.

Those who read the experiments in potatoes recently published in the ADVOCATE will have a comprehensive judgment as to how soils should be analyzed, and each farmer must make the analysis for himself. We shall now proceed to show him how.

First get your soil into the proper mechanical condition; that is, see that it is neither too stiff nor too loose. This condition is attained by tillage, drainage, and applications of various sorts. If the land does not now produce a good crop in a favorable season, make a note of it; note also the nature of the crop, and whether or not insects or fungoid growths have been the cause of the failure. If not, the soil must be deficient in one or more constituents of plant food. If you now try another crop of a different chemical composition, you will be confirmed in the belief that the soil is lacking in something, and your duty is to find out what that something is.

We have often pointed out that the prominent deficiencies in mostly all soils are one or more of the following, viz.: nitrogen, phosphoric acid and potash, the other constituents of plant food being usually in sufficient abundance for the small requirements of all crops. Some soils, however, are deficient in lime. Let us first take up the question of potash. Here a knowledge of geology is required. If the stones found in your neighborhood consist largely of granite, they will have entered largely into the composition of your soil, and you will have an abundant supply of potash. The potash comes from the felspar in the granite, and the soil will consist largely of clay. Another evidence of potash is an abundant growth of potash eating trees or plants, such as maple, oak, beech, walnut or elm amongst the trees, and purslane and tansy amongst the weeds. Now, if the ashes of these trees were spread on the ground while clearing the forest, the land will be specially rich in potash, and you need no chemist to tell you the fact. If, however, your barn-yard manure has been badly leached from year to year, much potash will have been wasted, it being very soluble, and it is quite possible that a potash fertilizer will have a good effect. In other soils it is quite likely that potash is deficient, but it is cheaper to find out by applying a potash fertilizer than by employing a chemist.

Let us now consider nitrogen. Its source is in vegetable matter, rendered available for the plant by decomposition through various stages into ammonia and finally into nitric acid, the latter being the form in which it is taken up by the plant. Soils rich in vegetable matter are easily recognized by their dark color, but a soil may be somewhat light in color and still contain sufficient nitrogen for the crop. By thoroughly drying the soil in the sun, then weighing it, afterwards heating it, then weighing it again, the difference in the weights will approximate the quantity of organic matter in the soil, the organic matter being lost in the process of heating. Where large quantities of barn-yard manure are applied, or large quantities of stubble, weeds, clover, etc., plowed under, there will be a good supply of organic matter in the soil, but it may not be in a good condition for plant food. There are two main sources of loss of nitrogen: (1) Over-fermenting the manure heap, by which the nitrogen escapes in the form of carbonate of ammonia; and (2) summer-fallowing, by which nitrogen is lost by drainage in the form of nitric acid, the lime in the soil escaping at the same time. This loss is immense in a wet season.

We have now seen that every farmer has the means of testing his own soil for potash and nitrogen. With regard to phosphoric acid, however, there is no simple test. This valuable constituent is not governed by geological formations, and in organic matter it is found only in small quantities. The farmer who is sure of having plenty of the other constituents in his soil can, as a rule, greatly economise his manure by the addition of bone dust or superphosphate to supply the lacking phosphoric acid. If he cannot reach the conclusions above mentioned, his only remedy is to make several small plots in the field, where he can test all three constituents in different proportions. For nitrogen, nitrate of soda or sulphate of ammonia is used; for potash, muriate of potash or sulphate of potash, and for phosphoric acid, bone dust or superphosphate.

We may inform our correspondent that we have not yet appliances for the chemical analysis of soils; but in a future issue we shall describe how to analyze them mechanically and how to name them correctly, which will also be of service in making tests. The fertilizers named can be procured from dealers who advertise in the ADVOCATE. Every intelligent farmer can be his own chemist.

If farming is a business, look out for crashes.

Prof. Cook, in his paper on Economic Entomology, read before the American Pomological Society, says the reason why imported insect pests are for a time more destructive than native species is the fact that they have fewer parasites or predaceous enemies to contend with. In the course of a few years these enemies increase in such numbers as to hold them in check. He said that new insect pests are learning to feed on plants heretofore not disturbed by them, so the entomologist has constant work before him. Another thought was that as insects increase in variety and number insecticides are multiplied in equal if not greater proportions.

Value and Uses of Ashes.

We have frequently drawn the attention of our readers to the value of ashes, both nutritively and agriculturally, but some practical farmers inform us that our estimate is too high. None of these farmers have been able to give us any reason for their belief, except that they have tried ashes and found them wanting, more or less. This objection cannot be regarded as conclusive unless it can be shown (1) that farmers in general also find them wanting, and (2) that they have been applied at the right time and in the right place. Any fertilizing application will not prove agriculturally profitable unless these conditions are fulfilled. For our part, we have always found them exceedingly profitable, but we have never used them without being able to give adequate reasons for every step we have taken.

Ashes of all qualities have been repeatedly analyzed, and the farmer can have no excuse for being ignorant of their composition. The various fertilizing constituents of which they are composed can be purchased separately. Now let the farmer purchase these constituents in the market and mix them until he has a mixture of the same composition as ashes, and he will then find out their value to his cost. He cannot take exception to this method of ascertaining their value, for these constituents are bought in large quantities in our markets, and are found to be profitable as fertilizers; indeed, the fact that such constituents have been used so extensively for so long a period of time is proof enough that they possess agricultural value.

All plants, including trees, have practically the same chemical composition, although the proportions in which their various constituents are found may vary considerably; and plants contain no fertilizing elements which are not taken from the soil. It is therefore plain to be seen that an application of ashes restores to the soil the identical plant food which has been taken from it. But in the process of combustion it is plainly seen that a part of the wood becomes dissipated in the air—so much in fact that only ten pounds of ashes remain from the combustion of a cord of hard wood, or five pounds from a cord of soft wood, and yet nothing is wasted or destroyed. If all the fertilizing material remained in the ashes, they would be a complete fertilizer, and the ashes would lack in no constituent of plant food. It now becomes important to know, before ashes can be intelligently applied, what constituents of plant food are lost during combustion, so that they may be supplied from other sources.

Nearly one-half of the wood is composed of carbon, and during the process of combustion, it unites with the oxygen of the air, forming carbonic acid. This is not regarded as a fertilizing constituent, properly speaking, because it comes back to the plant from the atmosphere through the leaves, so that carbonic acid applied to the soil has no direct fertilizing value, although it aids in preparing other fertilizing constituents in the soil for the use of the plant. Another part of the wood which is dissipated during the process of combustion is its nitrogen, there being an average of between two and three percent. This element, however, is largely found in the soot in the form of ammonium salts, which are very soluble, and are therefore a very quickly acting fertilizer. Nitrogen is one of our most valuable fertilizers; it is found in large quantities in stable manures and in decaying vegetable matter, and small quantities find their way into the soil from the atmosphere through rains and dew. All the other constituents of plants are found in the ashes, and are called ash constituents or mineral or *inorganic* matter, the carbon and nitrogen being the *organic* matter. The inorganic matter or ashes constitute only about five percent of the plant.

The ashes have many constituent parts, but their potash and phosphoric acid are the only ones which usually have any marketable value, although there is a very large percentage of lime, which has some agricultural value on some soils.

Dr. R. C. Kedzie, Prof. of Chemistry at the Michigan Agricultural College, has recently made an interesting analysis of different classes of ashes, being tabulated as follows:—

TABLE OF ANALYSES OF ASHES.

	Hardwood Ashes.	Leached Ashes.	Softwood Ashes.	Corn-cob Ashes	Tannery Ashes.	Soft-coal Ashes.	Hard-coal Ashes.
Soluble in hydrochloric acid..	93.00	89.00	50.00	70.00	45.00	18.00	4.50
Insoluble in hydrochloric acid.	7.00	11.00	50.00	30.00	55.00	82.00	94.50
Potash (K_2O)	12.25	1.60	12.00	45.00	2.50	.20	.10
Phosphoric acid (P_2O_5).....	6.00	6.80	4.00	4.50	1.20	.14	.05
Salts of lime and magnesia...	70.00	74.00	32.00	20.00	41.00	5.00	2.50
Value per ton (2,000 lbs.).....	$20.00	$10.40	$16.80	$50.00	$ 4.50	$ 0.40	$ 0.16

In commenting upon the above table, the analyst informs us that the ashes were selected in their market condition, and therefore contained more or less foreign matter. In estimating the value per ton, he calculates potash at 5 cents per pound, insoluble phosphoric acid at the same market price, and the mixed carbonates of lime and magnesia at one-eighth of a cent per pound, these being the prices of those materials if purchased separately on the market at wholesale rates.

From the explanations which we have given, and from their comparison with the above table, it will be seen that unleached ashes are essentially a potash fertilizer, and should therefore be applied to soils which are deficient in potash. Such are usually known as "light soils." When the soil is not particularly deficient in potash, an application of ashes to potato crops, roots and fruit trees, will be found specially beneficial, these products being great consumers of potash. If the soil contains appreciable quantities of vegetable matter, it will be rich enough in nitrogenous fertilizers, so that if ashes are applied, bone dust or superphosphate should be used in order to make up for the deficiency of phosphoric acid. Leached barnyard manure being deficient in potash, an addition of ashes will make up for this waste. Soils deficient in lime—such soils are not plentiful in this country—will also be benefited by an application of ashes, leached or unleached. Apart from their fertilizing properties, ashes—especially coal ashes—often prove beneficial by virtue of their effects on the physical condition

A Novel Method of Speculating in Seed Wheat.

A bond, of which the following is a copy, signed by a responsible farmer, has recently fallen into our hands:—

(COPY.)

No. 109. Incorporated June 10, 1886.	This Bond is used for Wheat only. BOND of	Capital stock, $35,000.00. Home Office, London, Ont

The Ontario Grain and Seed Company.

It is agreed and understood by and between the party named in this Bond and said Company, that the transaction covered by this obligation is of a speculative character, and is not based upon the real value of the grain.

Mr. Thos. Chambers, Township of Blandford, County of Oxford, and Province of Ontario, witnesseth that on or before the 1st day of September, A. D. 1887, we hereby agree to sell to responsible parties twenty-five bushels of Mr. Thomas Chambers' wheat at $15 per bushel, and for which he agrees to take his pay in notes.

And the said Thos. Chambers hereby acknowledges that he has bought of the said Company ten bushels of Red Lyon wheat at $15 per bushel as a speculation, and for which he has given his note for the same, and that said price is not based upon its real value.

And the said Mr. Thos. Chambers hereby agrees to allow the said Company 33⅓ percent of all notes taken for all his wheat sold at $15 per bushel, as their commission.

Signed and sealed this 20th day of July, 1886.

(Sgd.) A. SHERWOOD, Presdt.

(Sgd.) GEO. S. WARD, Secy.

(Sgd.) THOS. CHAMBERS, Purchaser.

In perusing the above bond, the following points suggest themselves:—

1. The wheat not being warranted, the purchaser could not recover damages should the wheat turn out to be worthless, unless he could prove that the company was cognizant of the fact. If the wheat does not yield 20 bushels, how can the purchaser compel the company to fulfil its contract? What can be done if the company becomes bankrupt?

2. Does the purchaser bind himself to give the company 20 bushels of wheat to sell? Must he pay "commission" on wheat sold by himself, especially if he takes cash instead of notes, and sells the wheat for *less* than $15 per bushel?

3. Under any circumstances, the purchaser must pay his note for $150. On the other hand, what is he *sure* of getting in return? If the company fails to fulfil its obligations, his remedy lies in an action for specific performance or for damages, and what would be the use of entering such an action if the company had no assets? How many of the purchasers would run the risk of a law suit against the company?

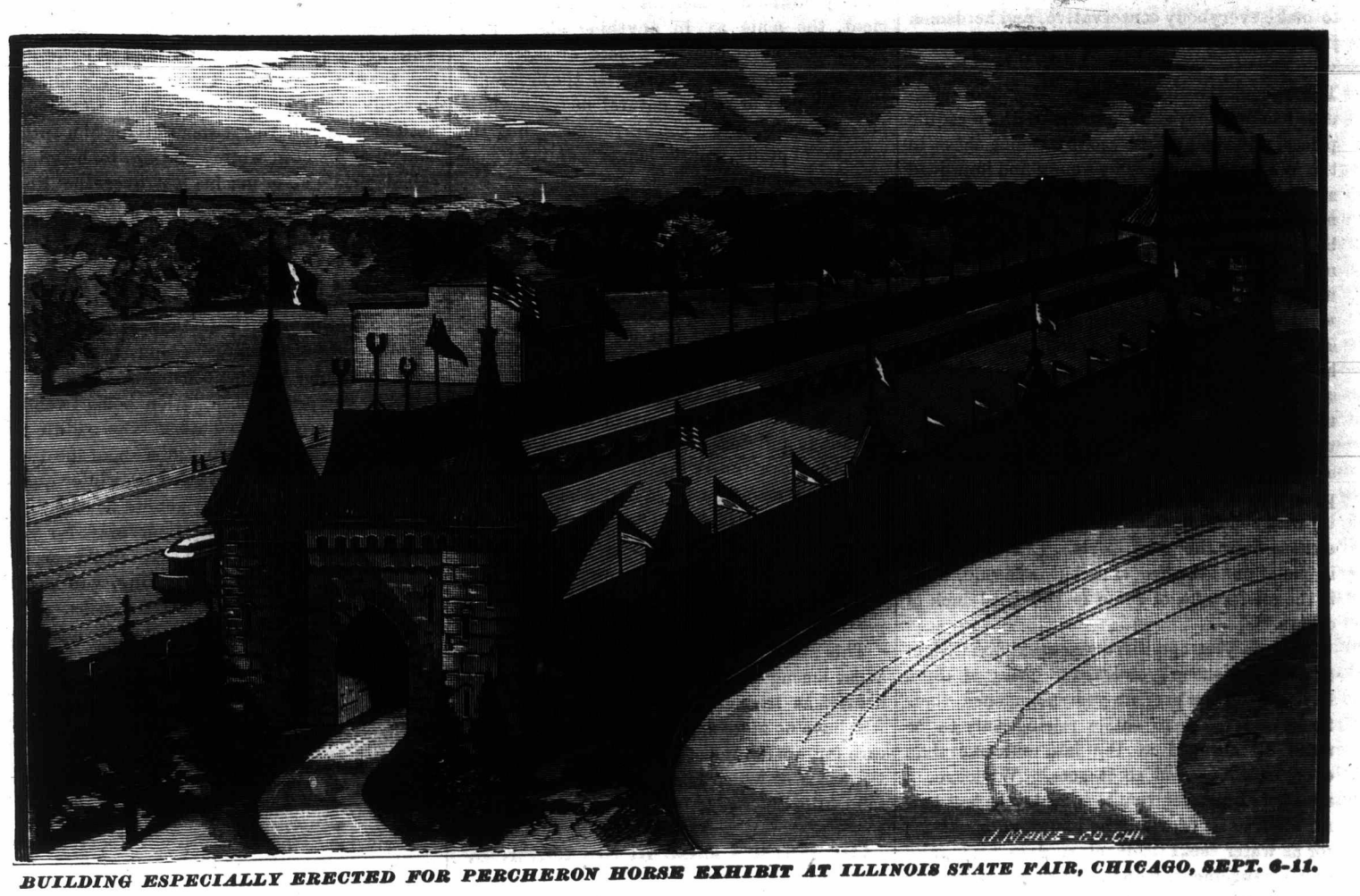
Any farmer who can be so undeliberate as to sign such a loosely-worded contract, exposes himself to the liability of being duped on every hand.

Professor W. A. Henry, of the Wisconsin Station, last summer kept six cows, three by pasturing and three by soiling, having the quality of the two herds as nearly equal as possible. The result was a product of 1779 pounds of milk from one acre of pasture, producing 82 pounds of butter, while one acre in soiling crops gave him 4782 pounds of milk, which made 196 pounds of butter. The pasture was one of the best blue grass pastures, capable of carrying a cow per acre through the season under favorable weather conditions.

Stock.

Percheron Horses.

The accompanying illustration shows the intense interest which the Percheron men are taking in their favorite breed of horses. Their zeal is laudable, but it is to be hoped that they will keep within the bounds of right and reason, and not boom up the breed for more than it is worth. The genuine Percheron has a fitting place in the battle of breeds, and nobody interested in draft horses should miss this opportunity of seeing what is claimed to be the best draft horse exhibit that has ever been held. The building is 700 feet in length, and is built by the American Percheron Horse Breeders Association. It is expected that nearly 300 pure bred Percherons from the United States and Canada will be on exhibition, and there will also be a display of several hundred grade Percherons in harness.



BUILDING ESPECIALLY ERECTED FOR PERCHERON HORSE EXHIBIT AT ILLINOIS STATE FAIR, CHICAGO, SEPT. 6-11.

The jury of awards has been appointed by the highest official representatives of agriculture in three great nations, the Minister of Agriculture of France having appointed Marquis de la Motte Rogne, Inspector General of the National Studs; Commissioner Colman having appointed the Hon. George B. Loring, ex-Commissioner of Agriculture, and the Minister of Agriculture of Canada having appointed Prof. Andrew Smith, President of the College of Veterinary Surgery at Toronto.

Should you raise stock in order that you may grow feed, or grow feed in order that you may raise stock? The settlement of this question will decide the nature of your farm operations for many years to come.

What Constitutes Unsoundness?

It is not always easy to say what constitutes unsoundness in the horse. Some affections cause unsoundness in the later and not in the earlier stages, and there are still others which may or may not be transmitted to the offspring. The feet and legs are the seat of many forms of unsoundness. The ideal of a perfect horse should first be understood before the weak points can be detected with ease and certainty.

Those affections which are usually regarded as producing unsoundness are the following:—Corns; founder or laminitis; quittors; a cut nerve; thrush (in severe cases); thickening of the back sinews; farcy and glanders; spavin (bone, blood or bog spavin); ossification of structures adjoining any of the joints, also ossification of the lateral cartilages; curbs; pumiced foot; ring bones; side bones; string halt; breaking down; broken wind; thick wind; whistling; roaring; grease and mange; megrimes; chronic cough; weaving in the stable; roaring; shying; balking; vicious kicking; cataract; ophthalmia; broken knees; biting; bolting; crib biting.

This category includes what are usually known as vices which are not actual diseases, but which have the same effect in contracting for the purchase of horses. A vice impairs the natural usefulness of a horse as well as an unsoundness proper, although the latter may be defined to be the existence of a disease or alteration of structure which hinders him from efficiently performing the duties naturally devolving upon him. It often happens that more depends upon the intensity of a given unsoundness or vice than upon the names employed to express them.

Horses affected with the following would not be regarded as unsound:—Curby hocks; thorough-pin; slight bog spavin; contraction of the foot; splints; broken knee, the joint not being injured.

These affections do not constitute unsoundness in the incipient stages. Contraction of the hoof, when it results from disease, is regarded as an unsoundness. Soreness of the joints, when caused by over-work, is not an unsoundness, and windgalls are not regarded as an unsoundness,

A written contract should always be entered into in case of suspicion of unsoundness, and it should never be loosely worded. The following form of document serves the purpose very well:—

Toronto, Sept. 1, 1886.

Received from J. G. the sum of two hundred dollars for a brown mare by Warrior, dam Lady Belle; warranted to be six year old, sound, free from vice, and quite gentle in the harness and under the saddle. F. R.

Go to the Exhibition by all means, but first decide whether you shall go for pleasure or profit. Pleasure and profit make a bad mixture, and will end in disappointment.

When you are examining stock at the Show, don't think that the animal which fills the eye and the show ring will be the most likely to fill your pocket. You might just as reasonably expect that the machine which makes the greatest noise is the best,

A Chatty Letter from the States.

[From our Chicago Correspondent.]

Between the spring and summer strikes among the laboring men, which unsettled all branches of business, and the disastrous drouth of the past summer, the people of the States have fared badly, and it is not very wonderful that many in the live stock business have become sadly discouraged. The two causes combined have brought about a state of depression which completely overshadowed the temporary bright promises of the early spring. It is reported from various quarters that stockmen, especially those in the fine stock lines, have determined to quit the business and seek something more reliable. Very naturally, the trade depression of the past few months has tended to make everybody conservative, and herdsmen just launching out in the business have been very shy of animals with long-priced pedigrees. The speculative branch of the fine stock business has not flourished because of the receding prices, and the general apathy among those in the West who usually buy young and improved stock. Anything which operates to keep the mere speculators and jobbers out, can hardly be called an unmixed evil; at the same time, it must be confessed that those who are called the mere traders in fine stock have done much toward spreading the demand for improved stock. As for the tendency among many breeders to quit stock raising, there is nothing surprising in that; it is but human to seek for the sweet unmixed with bitter; and we are all too ready to quit a familiar line of work as soon as we know enough about it to have experienced its disagreeable features, and take up with something else of which we know and can see only the good parts. Changeableness is one of our besetting sins, but, as a rule, what is the misfortune of some is the good luck of others.

About a year ago there was great dissatisfaction among sheep growers, and many of them have during the present year abandoned their flocks and taken to cattle raising, only to be more discouraged at the late outcome than ever before. And so it goes. Whenever a man gets into a legitimate industry he had better stick to it, provided he knows all about it; for as water seeks its level, so does trade, and any arrangement, which, for instance, makes sheep raising very unprofitable, cannot last, and must in time correct itself.

The Western range cattle season opened rather discouragingly, as a good many 1,100 to 1,200 lb. Wyoming cattle sold at about $3.20 to $3.40, or about what rangemen ordinarily expect for their cows and tail-end steers. But the trouble was that the cattle were not good in flesh; they were too good to class as canning stock and yet fell below the shipping and dressed beef grades, and so were destined to sell poorly at any rate, as they had no competition from either class of buyers. It seemed that rangemen who shipped such undesirable stock in the early part of the season were discouraged. The almost unprecedented dry weather cut the grass growth short and cured it prematurely; then came late summer rains, which only tended to make the cured grass washy, and prevent the cattle from getting fat. But range cattle from more favored sections near the Canadian line, came to market sleek and fat; and about the middle of August 1,200 to 1,350 lb. Montana rangers sold at $4.20 to $4.60, with winter Texans averaging 1,050 to 1,150 lbs. at $3.80 to $4. These prices were certainly not to be complained of; and all really fat range cattle sold better in proportion than prime barn-yard beeves. The coming winter will witness a larger number of plains cattle in the feed lots than ever before. The range industry has lately been in a discouraging condition, and all traces of the late big boom in that direction have faded away. The fact is that the free grass ranges have been shamefully crowded, and the markets have been overstocked with cattle that could not be put in marketable condition; and now those in the business realize that they will be compelled to adopt strictly business principles in range management, the same as in anything else. Five years ago one could buy a herd of cattle and pay nearly two prices for it, with the assurance that in a year or so the natural increase would make it grow into a good investment, but the margins of profit will no longer admit of such slip shod calculations.

The Powder River Cattle Co. has about 60,000 cattle in Wyoming and Montana, but is compelled to move northward to better ranges. The company expects to send some 10,000 young cattle to Alberta this year, and the calculation is to eventually send them as beeves to England by way of Canadian ports.

The difference in the manner of conducting the live stock exportations in the States and Canada is quite marked, in one respect at least. The American export business is conducted by a very few men of large capital who handle the entire trade, while in Canada the business seems to be divided among a very large number of comparatively small operators. The tendency of all branches of trade in America is to concentration and centralization.

This idea of concentration so popular in the West among stock growers, does not seem to flourish as it once did, as the small growers who have no more stock than they can properly care for, are doing better these hard times than the concerns which boast of "cattle on a thousand hills."

The Horse's Ease in the Harness.

Dr. Harvey, in a lecture delivered before the Penn. State Board of Agriculture, made the following allusion to the above subject:

"The horse should be made comfortable at his work. His harness should fit without galling. His bridle should be long enough to bring the bit down to the angles of his lips—not so short as to draw them up an inch or two above their natural position, as is so frequently the case. The blinds should not touch his eyes, nor his eyelids, either. His head should not be reined uncomfortably high. On a long journey, or in pulling a heavy load, he should not be reined up at all. He is surer footed when his head is free, and, if he should stumble, he recovers better if if can throw his head down and thereby relieve his forelegs of a part of the weight of his body until they get in place again. It is the same principle as is applied when men jump and throw a stone backward from each hand at the same time. If a horse's neck is tired by tight reining, he is a tired horse, and he has been tired without having accomplished anything to show for it. We have all felt what it is to be tired all over by the torture of tight shoes, and the relief that comes to the whole body with a pair of slippers. He should always have a free head when traveling in the night. He needs then the free use of all his faculties. Do not understand me as meaning that the check rein should never be used at all. It has several uses. A horse can be more easily managed, if he is disposed to be a little too lively, by checking his head up. Horses naturally carry their heads up when excited, and reining them up into that position excites them. A dull horse may, for a short time, be made much more lively by checking his head up a little while he is going. This effect will not continue long, but, for a short drive about a town, with a light weight behind him, there is not much objection to it if the horse is fresh. When a horse is checked up while going he should be unchecked while standing, that he may rest. The check rein should be easily shortened and lengthened, so that his neck may be relieved without giving him entire control of his head while standing, for he might rub his bridle off or get his foot over the lines if he could put his head low down."

Sheep and Wool.

One of the most important questions for consideration this month is that of the future character of your flock, and you should at the same time come to some conclusion about early lambs. The period of gestation being twenty-one weeks, ewes served about the middle of this month will drop their lambs about the 10th of February. If you have proper winter quarters for your flock, lambs should flourish better in February than in April or May, for you have more time to devote to them in the former month, and the lambs, when young, will evade the cold, raw winds of the latter months.

Even if properly managed during weaning time, the ewes may have lost somewhat in condition, and they should now, during the service season, be in good, thriving condition, but not fat. Any sudden change from a poor to a rich ration is injurious. The treatment after service decides the character of the lambs; if stimulating foods be given and the feeding be irregular, look out for abortion, weak or dead lambs, and other disasters. The feeding should be liberal and regular, but not overdone, changing the ration frequently and feeding plenty succulent food. Ewes younger than eighteen months should not be served; and the ram should be vigorous, not being overfed, and should not serve over 50 or 60 ewes in one season. It is a common practice to keep the ewe until she is only about five years old, and then fit her up for the butcher. No absolute rule can be set down, but when you have an exceptionally good ewe, get as many lambs as you can from her, even if her carcass finally brings you no returns from the butcher, and any ewe which does not fill this condition is not worth keeping for breeding purposes. Such a ewe should have a well-formed udder, be a liberal milker, should carry a good, marketable fleece, should be vigorous, and, when put to a good ram, should throw not less than two strong, healthy lambs each year.

No department of husbandry has its ups and downs so much as sheep and wool. The business has been greatly depressed during the

past four or five years; many flockmasters have sold out, while others have greatly reduced their flocks. Especially in the United States has the depression been keenly felt. The Americans claim to have the best sheep country in the world, and yet they have almost succumbed to competition from other countries. Some parts are exceptionally favorable, but they have almost ruined their business by their high taxation policy. Bottom appears to have been struck, however, and the recent rise in sheep and wool has given tone to the market, which must react upon the business in our country. You should, therefore, proceed actively, but cautiously, not permitting anything like a boom to sow the seeds of future disaster.

We believe that it is desirable, even in times of the greatest depression, to keep a few sheep, for they yield greater returns for the food consumed than any other domestic animal, excepting the hog, and they possess many other advantages which render their presence necessary on every farm. But some soils and climates are better adapted to sheep growing than others, so that every farmer cannot be equally successful in the business. Many farmers should make a specialty of sheep and wool; we know of no other occupation which is more pleasant, and, taking a series of years, more profitable. Our climate is well adapted to sheep growing. Above all, the sheep specialist should possess a thorough practical knowledge of his business, and be specially well posted in the characteristics of the various breeds. He must be backed up by a heavy, rich, dry soil, for it is the soil that makes the flock. On poor soils, however, there is nothing more profitable than sheep to increase its fertility, and many flocks are utilized almost exclusively for this purpose. This is done by hurdling the sheep on your poorest patches of land, feeding rich foods for the purpose of getting a large quantity of rich manure, the hurdles being moved frequently from one patch to another. With reference to the quality of wools, Bakewell says that clay produces the best, sand second, and lime the most inferior quality. In cold climates wool has a finer texture and a superior quality. High stimulating foods act injuriously upon the quality. The best soils for wool are also the best for mutton, and it is necessary that the land be dry, for damp soils are a fruitful cause of such diseases as liver rot, fluke and foot rot.

Perhaps the most important consideration is the selection of the ram. In order to make the best choice, a comprehensive knowledge of the breeds and of the market tendencies of breeds, wool and mutton, is very essential. It is a ruinous practice to base your calculations on booms or boom prices, for such are often very far removed from intrinsic values, and experience so dearly gained should never be forgotten. There will always be a demand for all the leading breeds of sheep and for all grades of wool; but specialists should manipulate in those lines where the greatest fluctuations are liable to exist. The ordinary farmer should confine his operations to means, and not rush to extremes. There are certain qualities which are in steady demand, and he should not, as a rule, overstep these limits. Such are medium wools and a fair quality of mutton, both of which can profitably exist in the same breed or grade. During the past few years there has been a great deal of talk about the Merino, and we think this a great improvement on the average boom. So long as fat stock shows continue to humbug the farming community, the public cannot consistently reject mutton of the Leicester and Cotswold quality and accept any tinged with Merino blood. But these prejudices are rapidly disappearing, and although nobody as yet wants Merino mutton, still the carcass of the Merino grade is thoroughly enjoyed by all who possess unvitiated palates. The wool of the Merino grade—that is, the product of the Merino ram crossed upon our grade sheep—will never fail to be in good demand. Failing this, the Southdown and Shropshire grades will fill the bill very well, and very little can be urged against the Oxford grade. We do not wish to urge too strongly the advantages of the above named breeds; many farmers have good common sheep, both the wool and the mutton being in good demand, and it would be very undesirable for them to pay fancy prices for thoroughbreds with the intention of improving the carcass or the fleece. The impression is too prevalent that great weights of fleece and carcass are the most profitable, forgetting that the larger animals require a greater quantity of food to produce greater results. It is high time that the relative quantities of food consumed, proportionate to the live weight, be thoroughly investigated.

It has recently been found by Dr. Jas. Cameron, that cows may suffer from a peculiar, hitherto undescribed, infectious disease, and that the consumer of the milk of these cows may get scarlet fever. The symptoms are known to many farmers as "sore teats," "blistered teats," etc. The disease is said to be more common in newly calved cows, and is capable of being communicated to healthy cows by direct innoculation of the teats with virus conveyed by the hands of the cowman. The disease usually continues four to six weeks, during which the patient suffers general constitutional disturbance, a short fever, a dry, hacking cough, sometimes quickened breathing, sore throat in severe cases, discharge from the nostrils and eyes, an eruption of the skin round the eyes and hind quarters, vesicles on the teats and udder, alteration in the quality of the milk secretion, and well marked visceral lesions.

John Marshall, of Sebastopol, Cal., writes: "One summer, four or five years ago, I was milking two cows. I used to milk as I had seen some, and suppose most all do, with both hands, one hand up while the other was down, alternately. One of the cows had been in milk about a month; her teats were very sore and made her quite restless. I changed my way of milking, bringing both hands up and down together, instead of alternately. The change had some effect, so I kept it up. In about a week afterwards I found there was an increase in the flow of milk. The increase was probably eight or ten percent, and without any change in the pasture. I was surprised; did not understand it, so I tried the same plan on the other cow, which had been in milk for four or five months. There was an increase in her milk, but not so great, maybe not more than three or four percent. Now, Mr. Editor, will you not ask some of your milking friends to try the above plan, and to let you know how they may succeed?"

The Dairy.

Seasoning Butter with Brine.

BY PROF. L. B. ARNOLD.

The best butter makers in England, Ireland and Jersey, as well as in this country, are gradually dropping the practice of seasoning butter with salt, and are using brine in its place. Those who are far enough along to appreciate the difference between gathering butter in a lump and handling it in granules, are in a position to adopt brine seasoning with ease and a decided benefit. All that is necessary for such a butter maker to do is, when his butter has come, to wash in the usual way with water till it will run off clear, and then immerse the granules of butter in brine as strong as it can be made, and let the butter lie in it the same length of time he would to have the salt dissolve if he had used dry salt, and then press the butter into a solid form, avoiding any friction or grinding motion while reducing it to a solid. In this way all working will be avoided, and the butter left in the best possible condition for keeping, and have an even color and the highest flavor it is possible for it to have. By lying in strong brine a few hours, the brine will draw the water out of the butter the same as dry salt would.

Brine makes a more even distribution of the saline flavor than dry salt can do, and it will relieve the butter of any excess of water it may contain just as readily as salt in crystals can, and put it in readiness for packing in as little, if not in less, time. It is by some supposed that salt strikes into butter better if dry salt is worked into it than it would if covered with brine, but this is a misapprehension of the action of salt—neither salt nor brine strikes into butter at all. There is no affinity between salt and butter or brine and butter. In seasoning butter with either, the salt remains in butter only as a foreign body mechanically mixed. It seasons only what it touches in any case, and brine will touch more of it than salt can. It is not enough to apply brine or salt and pack the butter at once, for the reason that newly churned butter often (but not always) contains more water in its composition than is desirable or safe for the welfare of the butter or that of the consumer. Salt will not go into the butter after its water, but when close to it the salt will draw the water to itself, and because it is more fully in contact with the butter when in granules, salt will draw out the water more effectually when in brine than when in crystals.

Another advantage of seasoning with brine is the certainty of uniform seasoning in different churnings. One would have to take special pains to get one churning salter than another when he seasons with a saturated brine, and he can do this without weighing or measuring if he will keep a little excess of salt in the brine, so that its strength will not be reduced by the water which it drains out of the butter. When butter is gathered in the churn in granular form it is never overchurned. Pounding it after it is in a lump or large masses is what overchurns it. In seasoning with brine it is never overworked, as it is not worked at all. Working out buttermilk and working in salt is where the overworking comes in. In fact, working at all is overworking, because, by the improved method, none is needed, and

breaking the grain of butter by grinding in crystals of salt is also obviated by seasoning with brine.

Notwithstanding the many advantages of this mode of treating butter, it will, no doubt, be a very long time before every butter maker will adopt it. The force of habit is so strongly entrenched in the conservative natures of many people, that, no matter what the process is, better or worse, they will keep right on in the old way, pounding their butter into grease in the churn and grinding it into grease in the butter worker, and, very likely, think they are making the best butter in the world, and wondering why they don't get as much for it as some others do. But the new way is so much easier and better that time will fetch them in, and the butter worker and seasoning with dry salt will become a thing of the past.

Future Relations of Stock and Fruit Growing.

Prof. Arnold, in a lecture on "Improved Systems of Dairying," recently delivered in Dublin under the auspices of the Creameries Association of Ireland, made the following remarks:—

"As the means of existence in the world became more and more difficult of acquisition, and as the population of the earth increased, it was necessary that we should be more careful in husbandry—the means of supporting human life. Dairying utilized that which otherwise could not be utilized. In producing beef there was only got about one-tenth of the nutritive quality, the rest being wasted and consumed on the animal. The cow could develop through the means of her udder more than twice as much nutriment out of a given quantity of food as could be obtained by putting it into meat, and there could be got four times as much nutriment by converting the waste products of the earth into milk as could be gained by putting it into beef, or mutton, or pork. This economy must of necessity be used, and that was the reason why there was such a tendency to develop the dairy husbandry. There was no way in which fertilization could be so promoted as by dairy farming; for butter took nothing from the soil that affected its fertilization in the way that wheat and other crops did."

These statements are true enough; but how can they be reconciled with those of the live stock organs who assert that mankind cannot live without meat? As an independent critic, we feel strongly disposed to take an entirely different view of the question. Granting that Prof. Arnold is right so far as he goes, yet he is liable to the imputation that he has not told the whole truth. Suppose we go a step further and say: meat must go, dairy products must go, leaving the human race to subsist on fruits and vegetables. Let us see if this is sound doctrine on the principle introduced by Prof. Arnold—that of economy, omitting the question of dietetic necessity for the present.

An average two-year-old steer will weigh say 1,200 lbs., and its carcass will make, in round numbers, 600 lbs. of meat, the average retail price being about 9c. per pound, or a total of $54, calculating an average rate of consumption to be 1 lb. of meat per day (which allowance will include about one-fifth of waste in bone), we find that one person will consume three-fifths of a bullock per year, or its equivalent in other animal foods. Under fairly favorable conditions it will require 2½ acres of grass to keep a steer during the summer months, and counting oats at 50 bushels per acre and hay at 1½ tons to the acre, feeding 10 lbs. of oats and 10 lbs. of hay per day, or their equivalent in other foods, it will require 4¼ acres to support a bullock for a year; but as the animal is two years old, we must consider that a yearling and a two-year-old are to be supported for a year before the meat is obtained. During the first year, somewhat more than half will be consumed compared with the second year, so that it will be near enough the mark to say that it takes 6½ acres to produce a two-year-old steer; but as we have supposed that one person consumes only three-fifths of the carcass, it will require, in round numbers, our acres to supply one individual in meat for a year.

Now, Prof. Arnold assumes that "the cow can develop through the means of her udder more than twice as much nutriment out of a given quantity of food as can be obtained by putting it into meat." If butter takes no fertility out of the soil, it certainly affords no nutriment to the human family, and our dairying system must be completely revolutionized before our race is induced to consume in dairy products twice the vegetable nutriment required to turn it into meat. For all practical purposes, it will now be accurate enough to say that it will require two acres per annum to supply one person in dairy products. Let us now see how many acres will be required to supply the same amount of nutriment in fruits and vegetables.

This calculation cannot be so accurately made, but judging from the reports of various institutions, it requires about one-fifth of an acre to supply the necessary quantity of fruits and vegetables for one consumer; and we will make the liberal allowance of three-tenths of an acre for grains to supply bread, etc., making a total of one-half of an acre to supply all the nutriment required for one person for a year, without speaking about intensive farming. But the beef-eater, or milk-drinker, must also have at least one-half as much of grains, fruits, and vegetables as the consumer who subsists entirely upon a vegetable diet. The account now stands thus:—

No. of acres required for the meat-eater ..	4.25
" " " " vegetarian ..	.50
Balance in favor of the latter	3.75

We thus see it requires 3¾ acres more land per citizen to support the human race on a meat than on a vegetable diet, and under the present system of dairying, 1¾ acres more land to effect the same results on a dairy bill of fare.

How, now, are we to get over the theory raised by live-stock and dairy authorities that mankind cannot live without animal food? If animal food possesses any advantage over vegetable, neither the chemist nor the physiologist can see it. A leading authority on physiology says that he will not condemn animal food as being positively injurious to the human race, but, he contends, its consumption is, to say the least, a disgusting practice.

The upholders of animal food make one unpardonable blunder in discussing this question. They go on the presumption that if meat is abolished, our existing system of preparing fruits and vegetables for consumption is to continue. For example, we convert fruits into dainties and nibble at them occasionally as a sort of luxury, whereas they can be preserved in their natural state, and consumed in large quantities all the year round as a cheap, nutritious and wholesome article of diet. Of the grains, we feed the most nutritive parts to our domestic animals. We grow mainly such vegetables as possess little nutritive value, and their feeding value becomes reduced in their mode of preparation for the table. We admit that man is not yet prepared for an exclusive vegetable diet; it will take a generation or two to prepare him for it—although there are already many noble specimens of our race who repudiate animal foods.

It is untrue that meats can make stronger and healthier specimens of humanity than vegetable foods. Meat and dairy products are capable of bearing disease germs which may prove injurious to man, and the risk is becoming greater every year. Milk is specially liable to infection, and the slightest change from the healthy condition of the cow, such as indigestion, over-feeding, the consumption of unnatural foods or those tainted with odors, a heated or excited state of the system, all act prejudicially to the value of milk or its products as an article for human consumption. To these objections add the fact that the expense is enormously increased by veterinaries' bills, the appointment of health inspectors, chemists, microscopists, etc., with the view of preventing adulterations — none of which objections apply in the use of fruits, grains, and vegetables. Vegetarianism, and not dairyism, is the manifest destiny of our race.

Butter, Cheese, and Milch Cows.

The war of the breeds seems to have got beyond the question of "Beef and Milk in one Cow." The "general purpose" cow usually signifies that the same animal can profitably produce milk and beef, but there are so many facts and figures against this theory that it seems to lapse into the question, Can the same cow produce milk, butter, and cheese with maximum profit in each? If so, this will be the "general purpose" cow of the future. We believe that, with the advance of investigation and intelligence, the milk, butter, and cheese cow will be as much of a myth as the "beef and milk" cow of to-day, and the time is approaching when necessity will be the greatest educator in this respect.

Chemists are wasting a great deal of their valuable time and energy in their attempts to establish milk "standards." This is strikingly illustrated in the bitter Jersey-Holstein controversy. The usual standard for milk is three percent of fat, and the Jersey authorities maintain that Holstein milk, being usually below this standard, should be regarded as adulterated, while the Holstein authorities assert that any deficiency in this respect is more than counterbalanced by the extra yield of milk, so that the total amount of fat, as well as other solids, obtained in a given period of time, is greater than that obtained from Jersey milk. This argument of the Holstein men is a sound one, and forcibly exemplifies the folly of standards.

Let us suppose that standards are abolished and that all milks are valued according to the percentage of nutritive constituents which they contain. The principle of valuation would then be the same as that of commercial fertilizers, each valuable constituent being paid for according to the market price. Nobody

can raise any objection against this method of valuation, the purchaser being at liberty to select a cheap, bulky article, should he prefer it to a dear, concentrated one. In the same way, a man should be permitted to buy or sell milk containing a large percentage of water so long as he does not pay for such water; in other words, so long as he pays no more for the milk than it is worth. Let the consumer be his own judge of how much water, or other worthless ingredients, he wishes to have in his milk, butter, or cheese; let him be the judge of the quality as well as the quantity of the milk which he needs.

Let us now examine the economic effects of this system. The farmer sells his milk to the cheese factory or to city customers; he puts in say ten percent of water, but he gets no pay for this water, and it is quite probable that he will find few purchasers for such milk. The consumer, by watering it to suit himself, is sure of the quality of the water added. It will therefore be to the producer's interest to leave the watering, should such be necessary, to other people. The same principle will apply to cream, and it makes no difference whether the watering is done when the milk is in the cow or in the pail, or whether the percentage of water is affected by the system of skimming or by tampering with the strippings. Let us suppose that, under this system, Farmer A gets a cent per quart for his milk, or 10 cents per 113 cubic inches for his cream (the quantity supposed to make a pound of butter), and that Farmer B gets 1½ cents and 16 cents respectively for his milk and cream. What will be the result? Farmer A will be compelled to study his business or send his dairying to the wall. Under the present system, he finds dairying profitable because he robs Farmer B of a portion of his profits. Farmer A will find that he must breed or select better cows, and that he must feed more liberally; for his profits now depend upon the quantity and quality of butter-fat which his cows produce, and not upon the quantity of water which the milk or cream contains. These principles apply both to butter and cheese making, for the milk which produces the most butter-fat also produces the most cheese, and the quality in both instances will be superior. The same rules will apply to the sales of milk in cities, for no citizen, however poor, can save a farthing by the purchase of inferior milk.

It will not do to urge that this system involves more labor or expense than the standard system, for in either case the percentage of fat or water in the milk must be ascertained. The proposed system merely adopts the principle that each milk pail should stand on its own bottom, thereby securing justice to all parties concerned. We take up these points mainly to show that, while the impending boom in favor of dividing dairy herds into milk, butter and cheese cows or breeds, may be a step in the right direction, the principle is utterly false, and the boom must therefore have its day. At present the percentage of butter-fat in milk and cream can easily be ascertained. For the present let the value be based upon this, and should it ever prove necessary to take the percentage of total solids into the calculation, methods will undoubtedly come into use which will be sufficiently expedient to meet all requirements. In short, the time has already come when our dairy breeders should converge their energies into one focus, instead of splitting them up into milk, butter, and cheese.

Garden and Orchard.

Fruit Cellars and Storage Houses.

T. S. Gold, Secretary Connecticut Board of Agriculture, in speaking on this subject, describes the refrigerating house on the fruit farm of a grower near Meriden, Conn. It is constructed of sufficient size and so closely encased by double walls as to preclude any danger from frost. An even low temperature is secured during the summer by a large stock of ice, which, uncovered, occupies one end of the fruit room. The apples are brought in as picked from the trees in baskets and stored in large slatted bins. No draft is allowed in the building, either in storing or removing the fruit.

The ripening of pears, says Mr. Gold, may be retarded for a moderate period without injuring their quality. The dampness from the ice is not injurious, and in some cases the drip from the ice falls on the fruit without harm.

There is a great difference in the keeping qualities of fruits, as all growers know. The skin of some, as the Greening, is liable to become discolored. The fruit should be ripe and full grown, but picked while hard and firm. Fruit that is green will never ripen well. That which is too ripe will become discolored and lose flavor. Bruised and worm-eaten fruit is not worth the storage and will injure the rest.

An even temperature, just above freezing, not only prevents decay but favors an even degree of moisture, keeping the fruit plump. Apples when frozen solid and not handled or moved while in this condition, will keep well all winter. Pears are injured more than apples by freezing, and even careful handling while frozen will spoil them.

A common cellar, which is clean and sweet, not affected by a furnace, and can be closed up, is a very good place for keeping apples. Next to butter, cream and milk, apples are the most sensitive to unpleasant odors and lose their own delicate aroma with the greatest facility. Kerosene, cod fish, cabbages, turnips and onions are all well enough in their places, but their place is not in a fruit cellar.

Wintering Cabbages.

Various methods have been employed for preserving cabbage through the winter, but the easiest way has usually proved the most successful. Storing cabbage in the cellar is out of the question, for it occupies too much space, and, besides, it does not keep so well as by other methods of preservation.

Cabbages should not be stored away until late in the season, and if they are not harvested until a few slight snaps of frost appear, no damage will be done. In the easiest and best method of storing, they are first pulled out of root, allowing as many leaves to remain attached to the heads as possible, and they are then removed to a dry place, where the soil is somewhat heavy, and where thorough drainage can easily be secured. Dig a shallow trench wide enough to contain four to six rows of closely-packed cabbage, placing the heads therein with roots upwards. It is not specially necessary, however, to dig a trench, as the rows may be laid on the surface of the soil. The length of the rows will depend upon the quantity of cabbage, but it is not desirable to have them too long, it being preferable to make two or more pits side by side. Earth is then thrown on and packed firmly until the roots are almost covered. In procuring the earth, it is well to dig a trench around the pit, so as to afford sufficient drainage, and if the pits are placed lengthwise down the slope of a hill, so much the better, as the drainage will then be still better. It is well to have the earth roofed up as much as possible, but this can only be efficiently done when a trench is dug, the centre of the trench being higher than the sides. This will also increase the drainage efficiency. If the heads are placed on the level ground, it will be difficult to roof the pit without covering the roots in the centre row, leaving those of the side rows exposed too much; but this can be largely averted by placing the largest cabbages in the centre row. Such pits are most conveniently made with five rows, one in the centre and two on each side. Cabbages wintered in this manner have been known to keep perfectly sweet and fresh; and, if they should receive a touch of frost, no damage will be done, as the earth will throw it out in the spring.

Keeping Roots in Winter.

One of the seeming obstacles to raising root crops on a large scale is the lack of a proper place for keeping them in winter, says Peter Henderson, the well known horticulturist. A general impression prevails that they must be kept in cellars or in a root-house specially built for the purpose. There is really no necessity for a special root-house, as the simple and cheap method of preserving them in pits in the open ground is far better. I will briefly describe my plan, which I have practised with all kinds of market garden roots for twenty five years. Mangels, in this section of the country, are dug up towards the end of October, or just after our first slight frost. They are then temporarily secured from severe frosts by placing them in convenient oblong heaps, say three feet high by six feet wide, and are covered with three or four inches of soil, which will be sufficient protection for three or four weeks after lifting; by that time, say the end of November, they may be stowed away in their permanent winter quarters. For turnips and carrots, there is less necessity for the temporary pitting, as they are much hardier roots, and may be left in the ground until the time is necessary for permanent pitting, if time will not permit of securing them temporarily.

The advantage of this temporary pitting is, that it enables them to be quickly secured at a season when work is usually pressing, and allows the period of their permanent pitting to be extended into a comparatively cold season. This is found to be of the utmost importance in preserving all kinds of roots; the same rules regulating the preservation in winter apply as in spring sowing. While in this section of the country it must be done no later than the end of November, in some of the Southern States the time may be extended a month later, while in places where the thermometer does not fall lower than 25° above zero, there is no need to dig up any of these roots at all, as that degree of cold would not injure them.

The permanent pit is made as follows:—A piece of ground is chosen where no water will stand in the winter. If not naturally drained, provision must be made to carry off the water. The pit is then dug four feet deep and six feet wide, and of any length required. The roots are then evenly packed in sections of about four feet wide, across the pit, and only to height of the ground level. Between the sections a space of half a foot is left, which is filled up with soil level to the top. This gives a section of roots four feet deep and wide, and four feet long, each section divided from the next by six inches of soil, forming a series of small pits, holding from six to twelve barrels of roots, one of which can be taken out without disturbing the next, which is separated from it by six inches of soil.

Should Fruit Trees be Mulched?

This is not yet a settled question amongst practical fruit-growers. The fact that mulching often produces profitable results does not settle the question; for the same effects may be produced by other and cheaper means. The main contention of the advocates of the system is that mulching retains moisture in the surface soil, thereby promoting plant growth. This theory presupposes that the surface soil is always in need of more moisture than it receives without the mulch, which, at least, can only be urged in a dry season. It is also argued that Nature always mulches her plants, and man should therefore follow her ways.

Here the questions may be asked: Is there no other method of supplying moisture to the surface soil? Are our agricultural plants now found in the state in which Nature furnished them to us? It might just as well be urged that Nature never plows or drains; therefore plowing and draining should be abandoned. Many farmers sow salt and plaster to retain surface moisture. Could fruit-growers profitably follow their example? All this is folly unless it could be proved (1) that the surface soil is the proper place for the greater portion of moisture, and (2) that the means named are the cheapest and most effective.

It has frequently been observed that the roots of plants grow most profusely in the direction of the greatest supply of moisture and nutriment, so that if the surface soil is the proper place for the ramifying of the roots, there is one argument in favor of mulching. Plants take special delight in surface-feeding when the soil or manure on the surface is highly nitrogenous and therefore contains stimulating properties. It has been the practice of many fruit-growers to protect young plants by means of mulches, then leaving them to shift for themselves. This is the main reason why they have found mulching so beneficial; for if once commenced it must be continued, the plants not having sufficient root-hold in the subsoil to withstand the drought and the pruning effects of tillage upon the roots. On the other hand, if the roots are induced to ramify in the subsoil, root-pruning is reduced to a minimum, and the necessity for the greater supply of moisture in the subsoil becomes obvious.

How can this object be best attained? Much depends upon the composition of the subsoil, and its capacity for retaining moisture and plant food. In soils where moisture has free circulation, the portions which retain the most moisture also retain the most plant food, the food being mostly dissolved in the water. For these reasons it will be seen that mulching with rich manures cannot prove beneficial unless the practice is constantly employed, and largely takes the place of tillage. If the subsoil to any considerable depth is retentive, the supply of moisture is inexhaustible, and it will ascend by means of capillary action as fast as the wants of the plants demand it, but in order to secure this condition, the land must be efficiently drained. The supply of plant-food is also practically inexhaustible, for it ascends with the moisture. If, however, there is a non-retentive substratum, the question of economizing the moisture in dry weather becomes a practical one, and mulching, judiciously practiced, is a vital part of the system.

Granting that, in certain cases, mulching proves beneficial, care should be taken that benefits in some respects are not counterbalanced by defects in others. If a mulch prevents the egress of moisture, it also hinders the ingress of the sun's rays, which, in some soils and for some plants, are more beneficial than the retention of moisture. A mulch may, by keeping the soil cool, prevent early blossoming, thereby warding off late spring frosts; but the same effect is attained by selecting a northern or western exposure. But some fruits should be urged on early, else the season becomes too short for their full development and ripening. For this reason, for example, few fruit authorities ever think of mulching grapes. A proper line must be drawn between early forcing and late development. It would be consummate folly to select a warm soil and a warm aspect to produce earliness, and then apply a mulch to produce lateness. Shade, in the form of the foliage of trees, is also a mulch, for it also retards the escape of moisture, but in many instances heat, light and a free circulation of air are of greater importance.

Within the past few years people's ideas about mulching have become revolutionized. It has been observed that dry muck, for example, makes an excellent mulch. If so, other soils will do as well. If, therefore, we take off say two inches of surface soil and spread it back on its place, we have a mulch. Instead of going to all this trouble, however, it has been found to be an easier task to keep the surface soil dry and loose by means of the hoe or cultivator. This breaks the continuity existing between the action of capillary attraction in the soil and the action of heat upon the surface, thereby reducing the escape of moisture; and, besides, the deleterious effects of the other system of mulching are not felt — amongst which, in addition to those already mentioned, are the accumulation of injurious insects, and the appearance of fungous growths under the mulch.

There is another phase of mulching which can be disposed of in a word. A mulch is applied fn the fall, after the ground freezes, for the purpose of protecting the plants in the early spring. Our advice is: Drain your soil and grow hardy plants, and you will save yourself all this trouble.

Preserving Squashes and Watermelons.

These wholesome and delicious vegetables have not so long a season on the farmer's table as they should have, and he has no excuse to offer for this delinquency.

For winter use select large, late varieties of melons, and do not pick them until the frost is about to set in. At that time the melons intended to be preserved should not be fully ripe; pick them about a week before they would fully ripen if left on the stalk, as they will then, if properly stored, ripen in about three or four weeks, after which they will retain their delicious, juicy flavor for a considerable length of time. They are best stored and preserved by being packed in any fine, dry substance, such as bran, sawdust, chaff, oats, etc. Any of these materials may be put into a large rough box, the material being packed closely around the melons, and the box may then be placed in any cool, dry, airy place, such as the cellar or woodshed, being cautious that they escape the frost.

Squashes may be kept all winter, and even until late in the spring, although they are seldom kept till midwinter. They should be carefully gathered, being careful that no bruised or defective ones be selected for preservation, and they should be gathered with great care. They are kept best in the cellar, and they should not be packed in heaps, but placed on shelves, and if one row is placed so as to press upon another, the fewer such rows the better. The squash is a highly nutritious vegetable, and should not be missing on the table for at least half the year, and they make a cheap, rich and delicious food for stock.

Papers for Amateur Fruit Growers.

XII.

(By L. Woolverton, Grimsby, Ont.)

GRAPES.

The time of ripe grapes is close at hand. Indeed, already (Aug. 23) my Moore's Early are taking on their first tinge of color; but this is an unusually early season, which is a matter for congratulation among growers in the colder sections.

When grapes are grown in quantity for market,

A GOOD SUPPLY OF BASKETS

and leno for covering them should be secured in good time. There is no use in buying small, fancy packages for ordinary grapes, any more than there is in putting up ordinary apples and pears in baskets or other small packages. I you have fancy fruit, by all means put it up in fancy packages and make the most of it; but ordinary grapes sell by the pound, and the less expense you put upon the basket or box the better, providing it is clean and tidy. Most grape growers now use the ordinary handle basket, holding about twenty pounds, and cover it with blue leno.

Grapes should be gathered carefully, so as not to disturb the bloom, using a pair of scissors to clip the stem.

The labor of harvesting is comparatively easy where the vines have been properly pruned and tied up in place on

A GOOD TRELLIS.

Many people seem to dread the work of putting up a grape trellis as if it were some great and expensive undertaking. In my opinion, it is less labor, and gives much greater satisfaction to put up a good post and wire trellis than to plant a stake for each vine. I have five hundred thrifty Concord vines now three years planted. Last spring I put up the trellises in the following manner: — For the ends and middles of the rows I planted deeply strong cedar posts, thoroughly braced them, and cut off the tops at about six feet above the ground. Between these I set stakes about twenty feet apart, leaving them also about six feet above ground. I then purchased about two hundred pounds of galvanized iron wire, No. 12 (steel wire No. 16 would do), and put on the first two wires, leaving the third to be added next spring. Two persons can quickly put up the wire, the one using the stretcher, drawing the wire from the well-braced posts, while the other follows and drives in the staples. Three wires are enough, the first at two feet from the ground, the second at four, and the third at six.

Now this is neither very laborious nor very expensive, and any one who plants even a few vines in the garden should not neglect to provide for them a good tidy trellis. Nothing looks more neglected than grape vines, as often seen, either sprawling upon the ground, or climbing upon stakes that lean at every conceivable angle, or twining around fences and trees in a haphazard, untrained manner.

Grape vines are frequently planted too closely. On good soil the distance may of course be greater than on poor soil, but, generally speaking, Concords, Niagaras, Wordens, &c., may be planted twelve feet apart in the rows, while slower growers, such as the Delaware, may be planted as near as eight feet apart.

The vineyard needs to have the best of

CULTIVATION AND MANURE.

The ground should be frequently stirred all through the hot season in order to produce fruit of good size and appearance. The ground must be kept rich, but the application of fresh stable manure is unwise, because it stimulates too strong a wood growth. Probably the Delaware will bear as heavy manuring as any kind; indeed without it no success can be had with this variety. Old bones are highly esteemed by grape growers as one of the most valuable of manures for the vineyard, and more valuable still are the decayed carcasses of dead animals, bones, flesh and all. I have used the dead bodies of two horses in this way with the most wonderful results, and am now experimenting with a dead cow. My plan is to drag the carcass to some out-of-the-way corner and cover it with manure and earth. Then after six months or a year it may easily be handled.

There are several

DIFFICULTIES

in the way of successful grape culture, amongst which I may mention that known as *mildew*. Some of the finest varieties have been discarded owing to the prevalence of this disease, as for instance, the Salem, one of the most delicious of Rogers' Seedlings. The usual remedy for the mildew is the frequent dusting of the vines, and of the ground about them, with powdered sulphur. Still this is only a partial success. It is said that in Italy a lime wash has been used with much success. Five pounds of lime is dissolved in fourteen gallons of water, and the mixture frequently sprinkled over the vines in the summer season. So simple a remedy can easily be tested, and if effective, would prove a great boon to the vineyardist.

This season the *thrip*, or grape vine leaf-hopper, is quite abundant, and very injurious to the leaves of the vines, but it is so small it easily escapes observation until after the mischief has been done. The sickly appearance of the leaves first arouses suspicion, and then as you examine further you find the tiny scamps hiding away on the under surface of the leaves, or else hopping upon the first disturbance. When very numerous these hoppers will destroy the foliage and prevent the fruit from ripening. Their destruction is difficult because they always work on the under surface of the leaves. Drenching with tobacco water, or with whale oil soap suds, is the most commonly approved remedy.

In my next article I will mention a few of the most approved and best tested varieties of grapes as a guide to the intending planter, who comes under the designation of an amateur fruit grower.

Celery for Winter.

The methods mostly recommended for wintering celery, by putting it into pits or trenches, covered with boards, straw, leaves or soil, may do very well for the market gardener or large grower, who does it in a wholesale way, but it is not at all adapted to farmers. He wants celery often, and but a limited quanity at a time, and when it is put up by this method he will go without sooner than dig it from under the snow or frozen earth. Secure some deep boxes, as deep, or nearly as deep, as the celery leaf stalks, and long. If the bottoms are not water-tight make them so by nailing battens over the cracks. Then bore three or four holes about four inches above the bottom. When the weather becomes so cold that you fear the celery will freeze (light frosts do not injure it), loosen it with a spade and take it up, leaving a small quantity of soil adhering to the roots of each plant, and place it in boxes as thickly as the plants can be crowded together until the box is filled, except a little in one corner. Then crowd a board down across the corner diagonally, so as to leave a space through which you can pour water without wetting the celery. When thus filled, place it in some dark cellar, where it will remain as near freezing as possible, and not freeze. Down the open corner pour a half pail of water, and do this sufficiently often so that water shall be always in the bottom of the box; the holes bored in the sides will prevent its rising high enough to come among the stalks, as this would cause them to rot. Celery is a low land plant, and will thrive with its roots in the water, and when taken out, as wanted, will be found to have made a large amount of new growth, and all will have become nicely bleached and tender.

Killing Weeds on Lawns.

We have been experimenting, says The Farm and Garden, with petroleum, with a view to ascertain whether or not it will kill such long-rooted plants as dandelions, thistles, plantain, etc., and we find it quite effectual. A little petroleum poured out of a can—we use a long-spouted one—into the crown of the plants, kills them right out. Of course, a larger quantity is required to kill strong old plants than is necessary for young ones. A few drops will kill daisies, and it will kill the grass, too, so that care is required not to allow what is given to go beyond the crown of the plant it is intended to destroy. With this simple remedy at hand, those who have big weeds on their lawns need not be troubled much longer, and where there is not a large space to go over, daisies and similar weeds may be cleared off in a short time.

Mr. Plumb writes from the New York Experimental Station that the universal testimony of scientists and others as against the English sparrow ought to satisfy the sceptics that this is a bird detrimental to the farmers' interest. For three seasons they have assaulted our experimental plats to their material damage. This year we found it necessary to employ a boy to work from 4 a. m. till nearly dark, keeping the sparrows at a distance. I have found them to be destroyers of grain, injurious to fruit, and early in spring very damaging to fruit buds. Outside near the window by which I write is a plum tree, where often in the spring, as buds were starting, I saw the sparrows pluck out the entire bud-centre.—[Philadelphia Press.

The Apiary.

Honey-Bees and Horticulture.

It is a well-known fact that sex is not confined to the animal kingdom alone, but extends to the vegetable kingdom as well. The sexual organs of plants and vegetables are located in their blossoms. The majority of plants produce perfect blossoms; that is, blossoms having both stamens and pistils. But we sometimes find blossoms having only stamens, or male organs, others having only pistils, or female organs; and these male and female blossoms may be borne on the same plant or on different plants. Some varieties of strawberries are called pistillates, because their blossoms have only pistils. These strawberries will not bear fruit unless planted near those varieties whose blossoms have stamens.

The squash or pumpkin vine bears both kinds of blossoms on the same stalk. Soon after a squash vine has put forth runners, the blossom buds begin to appear at the junction of the leaf-stalks with the vine. As the buds develop the stems develop also, until they are a little longer than the leaf-stalks. The blossoms now open, and we have large yellow flowers. At the centre of each flower is a yellow cylinder, about an inch in length, covered with fine yellow pollen. These are the male flowers, and, from their structure, can never produce squashes; their office is wholly to supply pollen to fertilize the pistillate blossoms. The first pistillate blossom rarely appears nearer the root than the seventeenth leaf. Instead of having a long stem to support it, this flower opens close down to the junction of the leaf-stalk with the vine. It has a small globular formation beneath it, which is the embryo of the future squash. If the structure of the blossom is examined, it will be found to differ from the tall male flower, in having the central cylinder divided at the top into several parts. These are what botanists call the pistils, and it is necessary that the fine yellow dust of the male flower should touch them, to fertilize them, that seed may be produced and a squash grow. This may be proved by so confining a blossom that no pollen can gain access to it, when the blossom will wilt, and the embryo squash turn yellow and decay.

When the conditions are most favorable, the flower sends out a fragance which attracts the bees. Prof. Gray calls this perfume the flowers' advertisement. The bees instinctively read therein that they are welcome to all the exuding nectar they bear away, if they will carry the pollen on their legs and bodies to the pistils. It has been suggested that honey is placed in the flower to attract the bees. After a bee has found honey in one flower it will be very likely to examine others of a similar appearance. In the spring, when the blossoms first open, many of the bees, very likely the young bees that have never before seen a flower, will be seen examining the leaves, branches, and even rough wood of the trunk of a tree, until they find just where the coveted treasure is located. After a bee has dived deep into one blossom and tasted the nectar, it knows where to look the next time. It is plain to be seen that flowers were not given their bright colors simply that we might feast our eyes upon their beauty.

Nature, that most careful economist, not only deals out honey in small doses, but she places it in the most cunning nooks and corners, that the

bee may be obliged to twist itself into all possible shapes, around and among the stamens, until the pollen is most surely dusted all over its body and legs. Within the flowers of the barberry there is a contrivance by which on the touch of the proboscis of the bee the stamens spring forward suddenly and shower the insect plentifully with pollen with which it may fertilize some other barberry blossom. The flower secretes no honey until the pollen is ripe and ready to do its work; then the honey slowly exudes into the nectaries, so that the bees may be kept coming and licking it out, in every hour of the day, and the flow of honey ceases just as soon as the pollen is ripened and gone. Mr. A. I. Root says: "The Catawba is a very desirable variety of grape, as is also the Delaware; but the former is very small. Dr. Grant originated the Iona by fertilizing the blossoms of one with the pollen of the other; but, in his first attempt, he failed repeatedly, because the bees were sure to upset all his experiments by their covering the flowers from which he wished to produce the hybrid seed, with lace or something of a similar nature to keep the bees away, he succeeded at once; and we now have the Iona as the result, a grape that is just about half way between the Delaware and Catawba, having very distinctly the flavor of each."

It has very frequently been urged that bees injure fruit and grain by taking honey from the blossoms; and I believe the matter was carried so far in a town in Masachusetts, that an ordinance was passed obliging a bee-keeper to remove his bees to another locality. After a year or two had passed, the fruit growers decided that they would rather have the bees brought back, because so little fruit set on the trees, in proportion to the number of blossoms that appeared. As it was a fruit-growing district, it was a matter of considerable importance, and the bees were brought back. Of course with the bees came fruit in abundance, for many kinds of fruit absolutely depend upon the agency of bees to fertilize the flowers, thus enabling them to produce fruit. It has been stated that unless we have a few hours of sunshine when early cherries are in bloom, we shall have no cherries at all; and we occasionally have a season when cold rain-storms so prevent the bees from getting out that not a cherry is produced. While the honey-bee is regarded by the best-informed horticulturists as a friend, a strong prejudice has been excited against it by many fruit-growers, and, in some communities, a man who keeps bees is considered as bad a neighbor as one who allows his poultry to despoil the gardens of others. Even the warmest friends of the bee may be heard lamenting its propensity to banquet on their beautiful peaches and pears, and choicest grapes and plums. But it should be remembered that the jaws of the bee, being adapted chiefly to the manipulation of wax, are too feeble to enable it to readily puncture the skins of even the most delicate grapes. If it were otherwise, whole crops of fruit would be destroyed by bees whenever a period of protracted drouth cut off their supplies of honey. Wasps and hornets, which secrete no wax, being furnished with strong, saw-like jaws for cutting the woody fibre with which they build their combs, can easily penetrate the skin of the toughest fruits. After the mischief has been begun by other insects, or whenever a crack or a spot of decay is seen, the honey-bee hastens to help itself. In this way they undoubtedly do some mischief; but before war is declared against them, let every fruit-grower inquire if, on the whole, they are not more useful than injurious. If the horticulturists who regard the bee as an enemy could exterminate the race, they would act with as little wisdom as those who attempt to banish from their inhospitable premises every insectivorous bird, which helps itself to a small part of the abundance it has aided in preserving.—*W. Z. Hutchinson in Country Gentleman.*

Sheaves from Our Gleaner.

Book-farming, says W. H. Bonner in Country Gentleman, is not any more to be laughed at than book-law, book-preaching or book-doctoring for they are all the results of study and experience, and only the written instead of the oral experience which we hear our brother farmers giving every day.

The injuries from the unrestrained range of cattle in woodlands are scarcely less than those from fires, as well from browsing as from breaking and tramping down, says Dr. Mohr. These damages are less apparent in a pine forest, because the leaves are not eaten, but the loss even there is enormous, and constantly runs to ruin.

Owing to the fact that Canadian cheese is now preferred in England to that of American, a new feature in the trade is the establishment of New York houses in Montreal, for the purpose of filling English orders. Many orders now received from Europe call for Canadian goods, and this is one of the principal reasons why the representatives of New York firms are locating in Canada.—[Farmer's Gazette.

I wish to do all the experimental work possible, but our farmers are too impatient and unwilling to wait for results, says Prof. Morrow. Sir John Bennet Lawes, who has devoted his life to the work of farm experiments, said to me that he did not like to report on a certain line of experiments he was conducting because he had only carried them out twenty-seven years, but our farmers are not willing to wait and want an answer in a few weeks.

Chicago and New York are to be supplied with milk made from nitrate of potash, glycerine, and other pleasing chemicals. The people of San Francisco had been fed on this compound for several months, and did not find out the fact until a few days ago, as the bogus article so much resembles the genuine that only the bottle-fed baby can detect the difference; and, unfortunately for the rest of mankind, the baby cannot talk. The shame of this sham is all the greater because a physician furnished the receipt.

Justice has triumphed over corruption in the passage of the oleo. bill by the U. S. Congress. It was a hard struggle, and the amount of time spent over the discussion was the equivalent of an enormous sum of money. The oleo. pack did their best, and expended immense sums, to defeat the bill, and came near succeeding in buying up a majority of the people's representatives. The business will now be under the control of the Inland Revenue Department, and it will be difficult to conceive what the oleomargarine men can now do to defeat the ends of justice.

During the last few months a new industry has sprung up in the Northwest—that of shipping hogs to eastern points. In one day recently, nine cars, seven for Toronto and two for Ingersoll, left Winnipeg. This trade promises to grow to large proportions. The hogs are gathered up from farmers all over the Province, and command good prices.

A Calgary rancher says that at least thirty thousand head of cattle have gone into the Calgary districts during the past summer. There are now at least 100,000 head of cattle in that section, distributed among sixty ranches. Up to the present there has always been a sufficient local demand to enable them to dispose of their surplus stock, but by next fall they would have to begin to ship to eastern markets.

The cost of fences is a strong argument in favor of confining cattle more closely and soiling, says the U. S. Dairyman. To illustrate, there are reported to be in the State of Maine 11,000,000 rods of highway fences, 16,000,000 rods of line fences, and 15,000,000 rods of division fences, in all, 42,000,000 rods, not including railroad and ornamental fences. At $1 a rod, the cost is, of course, $42,000,000. It is estimated that the interest on the investment, repairs, etc., impose an annual outlay of not less than $6,000,000. This is a heavy tax to keep in place or out of mischief the live stock of the State, valued at $16,499,376. The first cost of the fences, $42,000,000, is twice as much as the value of all farm productions for the year 1879. The value of all farm land, including fences, is $102,357,615. Two-fifths of this is in the fences.

The greatest yield of milk at the recent Edinburgh agricultural show was given by a cow belonging to Mr. John Wilson, West Netherton Farm, East Kilbride, which gave 31 lbs. 2 oz. at the first milking, and 32 lbs. 12 oz. at the second milking—a total in the twenty-four hours of 63 lbs. 14 oz. A five-year-old cow belonging to Mr. Jas. Simpson, Blackhall, was second highest with 29 lbs. 2 oz. and 28 lbs.—a total of 57 lbs. 2 oz. Mr. Jas. Forrest, 37 South Bruntsfield Place, Edinburgh, was third highest, his cow giving 25 lbs. 12 oz. at each milking, or a total of 61 lbs. 8 oz. It is understood that the judges in deciding the milking prizes, will take into consideration the quantity and the quality of the milk, and the period that has elapsed since parturition; and the prizes will not be awarded until the milk has been analysed by the Society's chemist, Mr. Falconer King.

If you go to the Show for pleasure, all you have to do is to follow the crowd, and get half jammed to death.

Surely one of your main objects in attending the Show is to profit either in money or knowledge. Time well spent is knowledge, and knowledge is money.

Go to the Show for the purpose of gaining all the information you can about your business; but you will usually find that, when you see something worth knowing anything about, the person in charge will be viewing the horse races. This piece of experience will make you a wiser man, for it is not likely that you will afterwards vote for more agricultural expenditures on the ground that the Show is an educational institution.

Veterinary.

Inflammation of the Feet.

Laminitis founder, or inflammation of the feet, is of two kinds: (1) When the inflammation is limited to the sensitive laminæ and sensitive sole; and (2) ostitis, by which the os pedis, or bone which fits into the hoof, is inflamed from the very beginning of the disease, as well as the laminæ and sole. The cause and course of these two conditions differ, and if the first is not promptly subdued, it may develop into the latter.

Laminitis is one of the most painful diseases to which the horse is liable. The causes are: Over-exertion, drinking cold water when heated, sudden chills, going on long journeys, and is often communicated to the feet from the internal organs, in such diseases as pneumonia, enteritis and bronchitis. Under such conditions the entire surface of the body is affected as well as the feet, the hair of the mane and tail sometimes disappearing. When the disease is caused by over-exertion or by concussion from travelling on hard roads, it is much more stubborn than when it appears as a disease of the mucous membrane. In the latter case it may pass off as a mere congestive attack, while, when caused by concussion, it leads to ostitis, or inflammation of the bone, sometimes terminating in necrosis (death of the bone), sloughing of the hoof, and a most agonizing death. In less severe cases, the os pedis becomes separated from the wall and forces down the sole, causing convex sole, which becomes thin and weak, or degenerates into a cheese-like substance, affording little protection to the parts beneath. The wall takes on peculiar markings, by which it may be distinguished from natural ones.

Acute laminitis terminates in resolution (restoration of the part to its natural condition), or in the form termed sub-acute or chronic, and in suppuration (the formation of puss), and occasionally in death. The chronic is that form remaining after the subsidence of fever, or it may originate independently of an attack. Horses, however, suffering from the chronic form are subject to the acute from the most trivial causes; and the acute form, when caused from concussion, if the patient outlive the primary attack, commonly degenerates into the chronic.

The disease is commonly confined to the two fore feet, especially when caused by concussion, but it is not unusual to find all the feet affected, sometimes only the hind ones, and in rare instances one fore and one hind foot. When only one is affected, it is due to an injury to the opposite foot, and the animal will be seen to bear its weight on the lame limb.

SYMPTOMS.

If both fore feet are affected, the horse is immovable, especially at starting. He seems as if his whole body were cramped, and stands with his hind legs drawn under the belly and the fore feet advanced in order to relieve them from the weight as much as possible. He will often groan from pain while sweats bedew the body. If you push him backwards, he will elevate his toes and throw his whole weight on his heels. The pulse is full, strong and accelerated. In some instances he lies down on his side with the leg stretched for hours together, evidently feeling great relief from the position, whilst in others, especially during the earlier stages, he will stand persistently. When the hind feet are affected, he will stand with all his feet together, the sufferings then being greater. He stands all in a heap, as it were, with anxious eyes, nervously elevating one foot from the ground, and then its fellow. His respirations are hurried and labored, and the nostrils dilated. When all four feet are affected, the symptoms consist of a combination of the foregoing, with local heat in all the feet, showing tenderness to the touch of the hammer.

TREATMENT.

Give a mild purgative and sedatives until the pulse is reduced, or else bleed. When caused by indigestion, bi-carbonate of soda may be added to the aconite in drachm doses. Stand the patient in warm water as high as the fetlocks during the day; poultice and encourage him to lie down at night. Remove the shoes in the first instance, and after a few days put on patent shoes and give gentle exercise. If he will not lie down of his own account, he ought to be thrown in some cases, and if he lies persistently, he must be turned. If unable to urinate, draw off the urine with a catheter. If tenderness of the feet threaten to remain, blister the coronet.

Corns in Horses.

A corn is regarded as an unsoundness. When a horse is first observed to be lame, he should be examined for corns, unless the lameness can be plainly traced to some other cause. In nine cases out of ten, they result from bad shoeing. A corn is a bruise of the sensitive sole, causing an effusion of blood to the affected part. It is usually located in the inner heel, and is chronic in some horses. It usually terminates in suppuration.

The affection is recognized by lameness, tenderness of the quarter when tapped with the hammer, and, when the heel is pared down, extravasated blood is noticed, and sometimes there will be an exudation of puss, known then as a suppurating corn. Corns are seldom found in the hind feet.

A corn is treated by first removing the shoe, then thinning the sole to relieve pressure; apply a poultice two to five days. Afterwards, when working, remove the shoes every month.

Cost of Milking.

I have been milking an average of eleven to twelve cows all summer, and it occurred to me to-night what a remarkable difference there was in the time required to milk different cows. I milked rapidly and timed myself: Heifer, 3 years old, first calf, gave 13½ lbs. milk; milked in seventeen minutes; teats short; milked with thumb and finger. Cow, 5 years old, third calf, gave 13 lbs.; milked in 6 minutes; teats long; milked with full hand. It would require 20 9-10 hours to milk 1000 lbs. of milk from the heifer, 7 7-10 hours to milk the same quantity from the cow. Estimating the cost of hired help at nine cents per hour, including board, the labor cost 18 8-10 cents for 100 lbs. of milk in one case, and 6 9-10 cents in the other.

The heifer and cow referred to are easy milkers. The figures show conclusively, whatever price a man puts on his time, that it would be very poor judgment to select short-teated heifers to make money on and get reasonable pay for the time spent in milking. If milk is worth a cent a pound, instead of 45 cents per 100 lbs., as now, it might change the state of a man's mind some.—[J. N. Muncy, in The Farmer.

Good Words.

Times are hard, but would seem harder without the ADVOCATE.—M. J. ARMAND, Pakenham, Ont.

Inclosed please find $2. I consider the FARMER'S ADVOCATE the best paper out.—JOHN FLEMING, Bay View, P.E.I.

I consider the FARMER'S ADVOCATE one of the best papers of the kind in existence.—ROBERT BICKERDIKE, Montreal, Que.

I would not be without your paper on any account, as I consider it a most valuable acquisition to any man's library.—REGINALD GEORGE ROGERS, Headingly, Man.

I have much pleasure in expressing myself highly pleased with the FARMER'S ADVOCATE, it being brim full of useful information.—J. HACE SMITH, Beausejour, Man.

I cannot praise your journal too highly for the independent stand it has taken. I am convinced it is the best friend to Canadian farmers.—F. STEWART JAPP, Courtright, ont.

Inclosed please find $1 for your very useful paper, the FARMER'S ADVOCATE, one issue of which is often worth all the money, in my experience.—ROBT. READ, Ottawa, Ont.

I beg to inclose $1 for the renewal of my subscription to the FARMER'S ADVOCATE. It is a paper I always look forward to, and ought to be in the home of every farmer who means business.—C. SWALE, Wiarton, Ont.

I am very pleased with your paper; it gives a great many useful hints and reminds one of a great deal that we are apt to forget, and still enlightening us on things that are so important to our success in life.—H. HUGHES, Guelph, Ont.

Inclosed please find the annual dollar for the FARMER'S ADVOCATE. It is money well earned by you and well expended by us. Long may you live to give us the FARMER'S ADVOCATE, is the wish of E. T. WRIGHT, Middleton, P.E.I.

Inclosed find $1, being my subscription for another year. I have taken the ADVOCATE for many years, and like it very much; would not like to do without it. I think it is the best agricultural paper I know of.—HENRY JACKSON, Cass City, Mich.

Inclosed please find my subscription for another year. I must say I am highly pleased with the FARMER'S ADVOCATE. I will give it my hearty support, and will do my best to forward as many new subscribers during the year as possible.—JOHN S. CAMPBELL, Morris, Man.

Inclosed please find $1 for your valuable paper, which I have received all right. I am well pleased with the FARMER'S ADVOCATE. I sew the numbers together each year, when volume is completed, for future reference. I wish you all success.—DUNCAN CAMERON, River Dennis, N.S.

Inclosed please find $1, being payment for the FARMER'S ADVOCATE. I have taken the paper for about fifteen years, and would not do without it, for it contains too much useful information for the farmers. Will try and send you some more names for it.—C. W. HUFFMAN, Guelph, Ont.

Inclosed please find $1 for the coming year. I have taken the ADVOCATE nearly twenty years, and I certainly have less inclination to give it up than ever. I like the ADVOCATE for the bold way it criticises things it concientiously knows to be wrong.—WM. TOMLINSON, Marsh Hill.

I am an old subscriber to the ADVOCATE, and the more I see of it the better I like it. It is a pity such a friend of the farmer should ever wear out. I thank you for your efforts in our behalf, and hope that you may be long spared to fill the chair you fit so well.—R. S. JAMESON, Melbourne, Que.

The writer, who is Secretary of the Wisconsin Dairymen's Association, wishes to acknowledge receipt of your FARMER'S ADVOCATE regularly for some time, and begs to say that in his opinion it is one of the best papers that he reads.—A. S. CORNISH, CURTIS & GREENE, Fort Atkinson, Wis., U.S.

Please find inclosed $1, being my subscription for the current year. I must say that I appreciate your independent course of action. I believe you have the interest of the farmer at heart. Your paper is not only interesting but highly instructive, and should be in the hands of every farmer and gardener.—WM. NEUSSEN, Cayuga.

Having received one dollar's worth out of your valuable paper, I consider it to be just the paper for a farmer. You will find inclosed $2 for renewing our papers for another year. We will remain your subscribers for the ADVOCATE as long as we find it useful in our homes. Please send it as usual to WM. RUPP and MOSES EYDT, New Hamburg, Ont.

Please find inclosed the sum of $2 for my subscription and George McBain's for another year. We like the ADVOCATE very much for its honest and plain dealing. Another journal we take would fain make us believe that we could not live in this country without imported farm stock of all kinds. What an absurdity. We say success to the ADVOCATE.—E. F. SUTTON, Ida, Ont.

Poultry.

More Seasonable Remarks.

ABOUT POULTRY HOUSES.—If you need a new poultry house, it is none too early for you to be thinking about it. It pays to think about such things in season, make your plans, decide what you need, how much you can afford to expend, etc. If you put everything off to the last minute, the house will go up in a hurry, *i. e.*, if it goes up at all, and ten chances to one that it will not be what you want at all. I know more than one poultry keeper, who put up buildings in a hurry, were not satisfied with them, and afterwards spent more in improvements than the right kind of building would have cost in the first place. And come to think the matter over, a good deal of the expense, and a good many of the failures in this poultry business, come because people blunder ahead before they know what they really want. I don't believe in taking "forever and a day" to think things over, but I do believe in looking an inch ahead before you jump a foot.

"But I can't afford to build an expensive poultry house," is what one farmer said to me when I tried to convince him that a new poultry house would add to his fowls' comfort, increase his profits, and improve the looks of his place; and I dare say that is what a good many who read this will say. Well, who asks you to build an expensive poultry house "with all the modern improvements?" I don't. Build a comfortable house; you can afford that. Secure comfort first, and let the improvements for looks come in later whenever you can afford it. I believe "vain pride" stands in the way of a good many—keeps them from putting up such a fowl house as they can afford. A neighbor has a nice house for his poultry, and others won't build until they can put up one just as good or a little better. Outwardly they make fun of the neighbor's "fancy chicken house," but inside they keep on thinking that just as soon as they can afford it, they will "take the shine off" his house. But a good many more won't spend any money on a poultry house, because they honestly believe it "won't pay." To all such I say:—Put up a comfortable home of some kind, take care of your poultry, and you will find out before you are a year older that comfort for poultry *pays*.

BUILD A SHED.—But if you have already a comfortable poultry house which affords ample room for roosting and laying, but not much to spare, it will pay you to put up a shed adjoining, so that the fowls can have some place to loaf and scratch next winter, when they can not roam out of doors. I don't mean an open shed, but one that is tight enough to keep out rain, snow, and the "coldest of the cold." After you get it up, put in a lot of dry earth and gravel, and on top of that, chaff and any litter of that kind you can get. If you live where you can get sand, put that in instead of the earth.

DON'T CROWD.—This piece of advice is meant particularly for those who kept a flock of early pullets last winter and made them pay a good profit. They now have the "hen fever" (*i. e.*, the people who kept the pullets have it), and they will figure thus:—Last winter I kept 30 pullets, and they paid me clear profit of a dollar a head; this winter I will keep a hundred, and make a hundred dollars. That's all right; keep a hundred pullets, and make a hundred dollars; but for mercy's sake, don't try to keep a hundred, or even fifty, in the room where you only kept thirty before. If you crowd that way, the chances are that you will make a hundred dollars out of pocket. There is too much of that kind of poultry keeping, and it is the kind that don't pay. If you have only room for 30 fowls, don't try to keep more than that number until you can provide more room. Keeping two fowls in the space that should be occupied by one has never yet paid, and it never will. When the people who have the 1,000-hen fever get that idea well into their heads, they will either give up the keeping 1,000 hens, or else provide room for 1,000.

THE TURKEYS.—If you have turkeys that you intend for the Thanksgiving market, be sure that you keep them growing right along; if they do not come home every night with full crops, fill said crops up with grain of some kind. You can't half starve a turkey from the time it is weaned until a few weeks before market time, and then by extra feed make an extra bird of it. Not much. The very best way, in fact the only way, to grow first-class market turkeys is to keep them growing all the time.

LOOK OUT FOR CHOLERA.—The latter part of August and fore part of September is the time when cholera "breaks out" in places where it can obtain a foot hold; but it won't break out if it can't get in; and it can't get in if you keep it out; and you can keep it out by taking proper sanitary precautions. I know poultry raisers who have kept fowls for years without even having a single case of cholera on their premises, while their neighbors' fowls died off like sixty or seventy. And the lucky ones did not "keep their fowls well" by dosing with "cholera pills" and "powders;" they saved them by simply taking care of them. Strict cleanliness about the houses, yards, coops, will do more towards keeping the cholera away than all the cholera medicine ever invented. Nine-tenths of the "sure cures" advertised to cure and prevent cholera are worthless, or nearly so; and yet some of them do good, because in the accompanying "directions" there is good advice about cleaning and disinfecting, and the people who buy the remedies follow the directions because they have paid for them.

GET THEM OUT.—I mean the half or two-thirds grown chickens that have been huddling in the nursery coops. If you have any shed or large coop that will accommodate them, teach them to roost in it; but if you have no such place and can not or will not make one, better let the chickens roost in the trees or on the fence, instead of crowding into coops that are much too small. If you have any idea such coops are comfortable places when the chickens are huddled in them, just go out and "observe" with your own eyes and nose. You have probably read a lot of nonesense about the danger of crooked breast bones and wry tails if the chickens are allowed to roost much before they are full-grown, and think you are doing the correct thing by keeping yours on the ground; but you are wide of the mark. If the perches are of the proper width—wide enough for the chicks to sit on, and far enough from the side of the coop or house, there is not the least danger of deformity, at least no more than when the chickens are allowed to crowd together on the ground in a coop. I have tried both ways, and know whereof I speak. And after you have taken the chicks from the coop, clean up where the coop stood. I am moved to give this piece of advice, because so many farmers leave their chicken coops just where they happen to be, uncleaned, until the next season, and in damp days and about dusk in "dog days," the stench from those coops is almost unbearable. Often the farmer wonders "where such a smell comes from," but never once thinks of the accumulations in the abandoned chicken coops. Let me tell you, if you keep fowls and do it well, you must always keep your eyes open and do things in season. Neglect causes a big share of the trouble, disappointment and loss that occur in poultry keeping.

NEW BREEDS.—The "woods are full of" new breeds, which their admirers are booming with all the might of printer's ink. We have the White Plymouth Rocks, the White Wyandottes, Dingos, the Motley Bells, the Pea Comb Plymouth Rocks, and perhaps some others that are not yet named; and if we believe all that is claimed for them, each one possesses more good qualities than any other breed of fowls on earth. But farmers who have no money to experiment with, had better go slow; if you have fowls of a well established breed, those that give good returns for the food and care bestowed, don't trade them off until you know you are going to get something better. Sometimes it pays to "make haste slowly."

FEED THEM OUT.—I mean the small potatoes and any other vegetables that you can neither use for your own table nor sell. Boiled and mixed with bran, they make an excellent and cheap morning feed for all kinds of poultry. When prepared for fowls that are confined to yards add some ground meat. A great many of the early sweet apples that would otherwise rot on the ground, could be profitably fed to poultry. The fact they may be wormy won't make any difference to the fowls, but if you get these wormy apples off the ground and use them for chicken feed and hog feed, it will make a difference to you in more ways than one.—[Fannie Field in Prairie Farmer.

The first consignment of cattle from Manitoba to Montreal arrived a few days ago in fine condition. They are chiefly Durhams. They were removed from the cars and fed about every twenty-four hours.

Wheat may be sown too thick as well as too thin for the best results; the richer the soil and the more perfect the seed bed, the less the amount of seed required, says Prof. Lazenby. There is more danger of sowing to much than too little, and no rule as to quantity can be given for different regions. The right quantity may vary with soil and exposure, the size of the kernels, capacity of the variety for tilling and injury from insects; and if all the conditions were at their best three pecks to the acre would be ample. The increase above this quantity requires knowledge and judgment on the part of the farmer as to the quantity of seed and its liability to those various accidents and influences.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. If an answer is specially requested by mail, a stamp must be enclosed. Unless of general interest, no questions will be answered through the ADVOCATE, as our space is very limited. 3. Do not expect anonymous communications to be noticed. 4. Matter for publication should be marked "Printers' MS." on the cover, the ends being open, in which case the postage will only be 1c per 4 ounces. 5. Non-subscribers should not expect their communications to be noticed. 6. No questions will be answered except those pertaining purely to agriculture or agricultural matters.

Correspondents wanting reliable information relating to diseases of stock must not only give the symptoms as fully as possible, but also how the animal has been fed and otherwise treated or managed. In case of suspicion of hereditary diseases, it is necessary also to state whether or not the ancestors of the affected animal have had the disease or any predisposition to it.

In asking questions relating to manures, it is necessary to describe the nature of the soil on which the intended manures are to be applied; also the nature of the crop.

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

Fruits at the Colonial Exhibition.—The Canadian fruit, preserved in about 1,000 glass jars, continues to be one of the chief attractions of the Exhibition, notwithstanding many of the specimens have lost their natural colors. This Exhibition cannot fail to be of great benefit to Canadian fruit growers, as well as all other classes, and no efforts should be spared to supplement this collection with fresh fruits at the earliest possible date. All reports agree that the apple crop this season in Great Britain and on the Continent will be under the average, excepting in Spain and Hungary, where large crops are reported. Efforts are being made to extend the markets for Canadian apples directly to all the principal cities of Great Britain, and on the Continent where it seems practicable. I hope to be able to report very shortly upon the prospect of success in this direction, as well as on the matter of cold chambers for fruit shipments in Canadian steamers.—C. R. H. STARR, Canadian Fruit Department, London, Eng.

Outside Work for Farmers' Wives and Daughters.—In the July number of the ADVOCATE I read a communication signed "J.E.A.," which I consider a libel on the profession and very injurious to the welfare of farmers. Such heartless and degrading abuse of the wives and daughters of farmers may be common in Ontario and Quebec, but no such balderdash need be written of New Brunswick, Nova Scotia or Prince Edward Island. Certainly, a few hard-hearted wretches may be found in all communities. The idea of keeping women enough around a farm to milk twenty or thirty cows, besides feeding them, cleaning the barns, feeding the hogs and calves, to say nothing of the chickens, geese, ducks, etc.; to talk of cleaning up the yard and looking after the cattle about the fields, is preposterous. In the name of all that is lovely, what kind of farmers have you? I pity from my heart poor "J. E. A." Hers, indeed, has been a hard lot. But then no woman of any spunk would submit to any such treatment year after year; nor would they refuse to do all that and more for a few days if absolutely necessary. If such things are true of your farmers, you may be ahead of us in agriculture, but you are a long way behind the Lower Provinces in moral development. In the winter we get up the season's wood and fencing, and cut and split enough to last all summer. The first thing done in spring is to make all the fences safe before the ground is dry. During all this time the women seldom see the inside of the barn, or dirty their boots, unless they choose to do so. The garden is the dryest spot, so that is well worked before anything is done in the fields. As our seasons are much shorter than yours, all the energies of the household are concentrated on one object, viz.: getting in all the crop possible. None stop to quarrel about which is their proper work. The women have had ample time to do their housecleaning, and get ready for the rush. Now that it is over they can pick up the loose ends, and either make mats or study music, as they feel inclined, until harvest, which has to be done up lively. Then, if they want to go home to ma for a few weeks, they bake up some bread, take one or two of the youngest of the children, and go; while the husband takes charge of everything, not excepting the dairy, having got his hand in helping mother when a boy, and later by doing the work when his wife has been sick for a day or two. Such we consider are some of the ways in which we should "bear one another's burdens." Talk about our wives and daughters being pale and sickly; it is arrant nonsense. I can pick out the farmers' daughters and wives in any company by their robust, healthy appearance. It is only when they try to ape the follies of their town and city cousins that they become pale and sickly and go to sleep in church. If "J. E. A.'s" account of farm life were generally true, few young women in this part of the country could be induced to go into partnership in any such concern. That our intelligent and respectable young farmers can always secure good and intelligent wives is one proof that farm work is not so degrading as some would make it appear. A. M. M., Lewisville, N. B.

Notes from the Maritime Provinces.—According to statutes made and provided, New Brunswick should have a Provincial Agricultural Exhibition this fall, but some time last winter the Board of Agriculture by resolution asked the Government not to hold an exhibition this fall and take the money that was allowed for that purpose to purchase stock horses. The Government apparently very readily acceded to the request of the Board, provided the necessary legislation, and dispatched a delegation to Ontario to purchase the horses. It was late in the season, but two were secured and sold to the highest bidder for the summer. After the season they are to be kept on the Government Stock Farm. The Government, however, do not propose to stop at that in their efforts to improve the breed of horses in New Brunswick, for they have just sent Provincial Secretary McLennan to England to purchase six more horses—two Clydesdales, two Shires and two Cleveland Bays. The money to purchase the English horses is to be taken from the grants to the Agricultural Societies, and if the horses are sold on their arrival, which has not been decided, the amount for which they are sold is to be placed to the credit of the Society; or, more correctly, is to be put back into the same fund out of which it was taken. The crops in the Maritime Provinces are likely to turn out much better than was expected a month ago. Since that time the weather has been very favorable for growth. Early grain has got a fine growth of straw, and if the rust keeps away will no doubt yield well. Late grain is coming on finely. The hay crop will be light in Nova Scotia, Prince Edward Island and a part of New Brunswick; the most northern counties of New Brunswick rejoice in a good yield of hay. The apple crop in Nova Scotia is reported good, and is considered in the districts where it is the principal crop as the most profitable one. Nova Scotia so far is pleased with its first year's work in the effort to spread agricultural knowledge among the people. It is a good thing to get a good start in New Brunswick, and I think the farmers of the Maritime Provinces generally are disposed to stand by the Government of the Dominion in their proposal to establish an agricultural station down here. I notice that *your* matured judgment *opposes* the scheme, but it perhaps is best that we don't all think alike. I hope you have had a very pleasant trip to the old land, and that Canada at the *collindories* came up to your expectations.—H. T., Point de Bute, N. B.

Shorthorn Herd Book.—I have received the August number of the ADVOCATE and think you have made a mistake in the paragraph commencing with: "Now, I hold if it had been properly understood when the vote was taken, there would have been few breeders who would have wanted a higher standard than the American Herd Book." You have put it "B. A. Herd Book," which seems to me to spoil the argument, as the B. A. is a higher standard than the American. You will please make correction in next issue.—ROBERT MCQUEEN, Salem, Ont.

Salt Frauds.—In your August number you publish a flare-off from Mr. Joseph Kidd, of Goderich, the tone of which evidently shows that my exposing the fraudulent practice at present in vogue, of shipping salt that only weighs 200 lbs. gross per bbl. and upwards, has hit that gentleman on a raw spot. I want the farming community to note that Mr. Kidd does not deny that my charge is true. He practically admits it. One might almost be inclined to think, on reading his letter, that he himself is one of the manufacturers referred to. Well, I mentioned no names; those whom the cap fits let them wear it. Then, in *his* philanthrophy, he begins to tell us about another abuse. He says "there is slimy, adulterated stuff that weighs 350 to 400 lbs. per bbl.," and that this ought to be rooted out. He proceeds to gratuitously inform the public that he has works at Goderich, Seaforth and Dublin, but his brine at Seaforth is so bad that he cannot make salt there; so, as he will not place the adulterated stuff in the hands of the public, he confines his productions to Goderich and Dublin! Imagine the tenderness of the man's conscience who will ship salt that is only two-thirds of what is commonly known as a barrel of salt, but won't ship adulterated salt!! Verily, this is straining at a gnat and swallowing a camel. However, I am thankful Mr. Kidd's conscience on this point is yet green, and as the short weight business will be attended to without his aid, I will look for his assistance in "rooting out producers of slimy, adulterated stuff." Your article on this point, Mr. Editor, is admirable. The Government have done well in having the ten different kinds submitted to analysis; but I maintain they are not right in keeping secret the name of the maker of quality No. 10. If there is a brand of salt offered for sale in Canada, be it Canadian or English, that contains 5.2 per cent. of impurity and only 93 per cent. of salt, *it should be made known*, and here I will join hands with Mr. Kidd and do all in my power, singly or in his company, to find out who "No. 10" is. It is an outrage on the public that when they pay for certain work being done *the full results should not be accorded them.* The name or brand of No. 10 ought to be made public. Will Mr. Kidd help me unravel the mystery, or will he fear lest it be some old stock of his Seaforth salt (that he no longer makes) risen up like Banquo's ghost to condemn him? In reply to Mr. Kidd's question why I do not favor an inspector, it is because I doubt the efficacy of the plan. What in my opinion would be far more efficacious would be for the Government (say four times a year) to take samples, hap-hazard as they are offered for sale, of all different makes of salt, analyze them, and publish the analysis with the names of the various makers.—JOHN RANSFORD, Clinton, Ont.

Notes from Manitoba.—In reply to R. C. B., of Stodderville: He said I was right when I said Stodderville is within five miles of the railroad, but he says unfortunately that does not prevent his living fifteen or even thirty miles from the market. Now this is not so, for it is only about fourteen miles to the boundary line, and the railroad running parallel with the boundary line, has markets every eight or ten miles; so my reader will see that he has not got to draw his grain more than fourteen miles to market. He says he does grumble, and others do the same, at having to pay a tax of 35 percent upon our tools. Now I would like to know why he does not go where he can get them, and stay there. I would like to inform him that if there was not a tax put on the tools, our markets would be flooded with inferior machines like a great many American machines, which are built for about one-half as much as our Canadian make. I did not say that this tax went into the C. P. R. pockets, but I said it went for the purpose of building railroads through the country, and the C. P. R. was doing so as fast as possible. He says he was ignorant of it previously. Now he need not think he knows everything, for he does not; and he says that in future, before I accuse another of publishing false statements, I will take the trouble to find that they are so. Now what I have said is so, and readers can judge for themselves whether he has written falsely or not. I think such men as your correspondent do more harm to this country than the Yankee editors who try to do it all the harm they can. I do not want to seduce people to this country, but let them think for themselves before they take the word of some men. We are having a very dry summer here, which is making the crops lighter than usual, but they will turn a good average compared with the Eastern States and Ontario. We are having a good haying harvest. People coming to this country intending to buy land that is improved, would do well to take a run up this way, as we have a fine country with lovely scenery. It would do many people good to view the fine sights to be seen at the foot of the Tiger Hills. On looking at them we see hills and hollows covered with lovely shades of green from the timber and shrubbery, and here and there a strip of prairie dotted with farm buildings and waving fields of grain; and to complete the scenery are to be seen herds of cattle rolling fat, and as the cars come up three times a week, it makes it lively. The C. P. R. has a gravel pit here which gives employment to a lot of men; but people must not think that the land is all gravel, as it is only a small ridge, and the rest is a black loam. People need not expect to find much good land for homesteading here.—C. G. C., Treherne, Manitoba.

The Northwest Crops.—This has been the dryest and hottest summer in the Northwest for forty years, and yet the crops are turning out much better than was expected a month ago. The Bell Farm will have 1,000 acres good; the balance will be half a crop. The country which has suffered the most from drought is that lying between Qu'Appelle and Moose Jaw. The second prairie steppe, which is identical with Assiniboia, has suffered the most from the unusually dry summer. A prairie fire in July is not often a matter of record, but it has been a disagreeable feature in the Northwest during the present summer. In southern Alberta, in the stock country, there have been ample rains, and Manitoba has been benefited by local showers to such an extent that the wheat crop will be nearly three-fourths, for it is turning out much better than the outlook indicated a month ago. The berry is *hard*, and the quality will make up for quantity. Oats have been the worst sufferers. They need a good deal of rain in this climate, and therefore during a dry season are more affected than wheat or barley. The last named grain is reported good in most localities. The quantity of land under cultivation this year is much greater than that under crop last season. This will keep up the general yield to figures even in advance of last year. Vegetables have not done so well this year, but such is the astonishing richness of the soil that the growth of roots is even remarkable. Harvesting is well under way, fully two weeks ahead of all preceding seasons, except the comparison goes back to the oldest inhabitant. The ominous news comes from the Montana cattle ranches that the American locust has been eating up the grass there, so that what the drought left unfinished the locust is completing. The grasshopper has bred plentifully this year on the great American plains, and should he follow his instincts next year as he has annually done, he may extend his flight to the east and reach the fertile fields of the Red and Saskatchewan Rivers There is no arresting him, but the ingenuity and industry of the Western settler has reduced the extent of his intended ravages. The Provincial Board of Agriculture are making extensive preparations for the fall exhibition, which is to be held at St. Boniface

next month. I will have an opportunity then of seeing what the Province this year has done in its agricultural productions.—E., Winnipeg.

Farmers' Clubs.—We are taking steps to form a Farmers' Club, and seeing your answer to B. B., Teeterville, Ont., in March number of ADVOCATE, would feel very grateful if you would forward the ADVOCATE for December, 1884, and August, 1885.—W. J. B., Banda, Ont.

[A Committee of the Middlesex Agricultural Council has been appointed to revise the constitution and by-laws published in our August issue, and they will shortly be published in pamphlet form. All parties desiring to form Farmers' Clubs should put in their application for a copy as soon as possible. All communications should be addressed to W. A. Macdonald, Corresponding Secretary Middlesex Agricultural Council, London, Ont.]

Crops in N. B.—Reports from all parts of the Province indicate that hay will be very light in most of the counties, but grain and roots promise well. We are having bad weather for haying, but good for late crops. The drought in June and early part of July dried up the pastures and spoiled the hay crop. Still we have very much to be thankful for—no floods, no hail storms, no cyclones.—SUBSCRIBER, Westmoreland Co., N.B.

Law Relating to Noxious Weeds.—Define the law relating to Canada thistles, passed some years ago.—J. B., London.

[The statute passed "some years ago" will be found in the Revised Statutes of Ontario, chap. 188; but this has been repealed by an act passed by the Ontario Legislature in 1884, entitled "An Act to Prevent the Spread of Noxious Weeds and of Diseases Affecting Fruit Trees." These weeds embrace the Canada thistle, ox-eye daisy, wild oats, rag weed and burdock; and the diseases include black-knot, found on plum and cherry trees, and yellows, found on the peach and nectarine. The Council of any city, town, township or incorporated village may extend the provisions of the act to other weeds and diseases; may also change the time fixed for giving notice. Upon petition of fifty or more ratepayers, an inspector may be appointed, who shall give notice to owners or occupants of lands infested with noxious weeds (first notice to be given not later than July 10), and if they refuse to destroy the weeds within ten days from date of serving notice, the inspector shall cause such weeds to be cut down or lay information before the Justice of the Peace. The inspector shall present a sworn bill of costs to the owner or occupant for destroying the weeds, and another such bill to the Council, the latter paying the same meanwhile, but shall afterwards recover amount by imposing taxes on the lands. The inspector has no power to enter upon lands sown with grain, and no notice is required to be given to owners of unoccupied lands. On railway lands, the notice shall be served on the station master. Any owner or occupant who refuses to cut such weeds after receiving notice from the inspector, or knowingly suffers them to go to seed, endangering their spread, or who suffers black-knot or yellows to infect his trees, is liable to a penalty of not less than five and not more than twenty dollars for each offence. The same penalty is imposed upon any person who knowingly sells or offers for sale any seeds containing seeds of the weeds mentioned, those of wild mustard being added; and a similar penalty is imposed upon all persons who knowingly offer for sale or shipment any fruits infected with yellows. Weeds on highways are under the control of the overseers, and their extermination forms a part of the ordinary statute labor. Inspectors and overseers who neglect their duties are liable to a fine of not less than ten and not more than twenty dollars. It shall be the duty of the Council to see that the officers perform their duties.]

Superphosphate and Ashes as Fertilizers.—Please let me know in next issue of ADVOCATE if superphosphate of lime mixed with hard wood ashes and bone dust are at least as good as barnyard manure for growing onions and strawberries. If so, what is the proper quantity of each to apply per acre, and how and when to apply the same for next year's crop?—L. L., Ste. Faye Road, Quebec.

[It will not do to mix ashes and superphosphate, as the lime in the ashes unites with the superphosphate and makes it insoluble. No lime fertilizer is needed with superphosphate, as the latter will yield all the lime required by the plant. Read over article in reply to "G. G." in this issue. If your land requires a general fertilizer, barn-yard manure will produce the best results on onions and strawberries, or any other crop; but if it is deficient in phosphates, superphosphate, with or without barnyard manure, will be the best and cheapest fertilizer you can use. Bone dust serves the same purpose, but it is not so active as the superphosphate, being less soluble, and will therefore last for several seasons in the soil, while superphosphate is usually spent in one or two seasons, unless a large quantity is supplied. With regard to ashes, read our article on the subject in this issue. The finer the bone dust the more active it is. It may be applied at any time, but for shallow-rooted crops it should not be plowed under, but worked thoroughly into the soil by the harrow and cultivator. Superphosphate, however, should be applied just before planting, and some may be advantageously applied as a top dressing after the crop is up. The quantity depends upon the soil, varying from 300 to 1,200 pounds per acre.]

Preventing the Formation of Gulleys—Permanent Pasture.—Please answer the following questions in your next issue: 1. Would double poppy seeds be good to sow where the freshets have cut a deep gully to prevent further washing? 2. Please give the best mixture of grass and clover seed for permanent pasture where the soil varies from a sandy loam to a rather heavy clay, the quantity of each required for an acre, and approximate price for each kind per pound. 3. About how long would such a pasture last in this country, and how many head of cattle would one acre support through the summer?—ENQUIRER, St. George, Ont.

[1. We don't think poppies would be of much use. Your best plan is to plant long-rooted trees, such as the elm, the willow, or the silver-leaf poplar. 2. This question has been fully discussed in recent issues of the ADVOCATE. It is impossible to lay down an absolute rule suitable for every section of the Province; the farmers in each section should make tests for themselves. However, you cannot err much in selecting the following mixture: Timothy, 8 lbs.; orchard grass, 4; meadow fescue, 4; red top, 2; June grass, 4; Italian rye, 2; perennial rye, 2; creeping bent, 1; tall oat, 1; red clover, 2; Lucerne, 3; Alsike, 2; yellow clover, 1; white clover, 2; total pounds per acre, 38. If you have not a deep sub-soil, it will not be adapted to Lucerne. For prices write to the seedsmen who advertise in the ADVOCATE. 3. Such a pasture, if well managed, should be good for twenty years at least, and should support not less than one steer or cow per acre, or even double this in favorable seasons.]

Sore Neck on Horses.—We have a mare which has a sore neck on top, and has had it about six years. It begins to get sore in the spring when the first warm days set in, and no receipt that we can get will cure it; but it passes off in cold weather. We use a sole-leather pad, and have used a zinc pad, but they did no good.—W. E. M., May, Mich.

[Apply carbolic acid with a brush or feather once every second day for about ten days, and, at the same time, dress with the following lotion: Alum, 4 drs.; sulphate of zinc, 1 dr.; acetate of lead, 2 drs.; water, ½ pint. Apply twice a day with the hand.]

Bone Mills--Mineral Phosphates--Ammoniacal Fertilizers—Experiments with Fertilizers — New Varieties of Wheat — Wheat Rust — Timothy.—I take the liberty of asking the following questions if you think it worth while to answer them in the columns of your paper: 1. Being new to this country, I beg to ask if there are any bone mills for the crushing of bones suitable to be applied to the land. If so, what can they be bought for? 2. Are there any manufactories for dissolving mineral phosphates, and what are their cost, as I understand that there is a large amount of these coprolites in the Ottawa district said to be very rich in phosphates? 3. Where are the ammoniacal manures to be had, either in the form of nitrates or sulphates, and their cost? 4. Is the sulphate of ammonia manufactured from the gas works here as in Britain? Is there any record of results from experiments (if ever there has been any) with any of these manures? 6. Can you state what is generally believed to be the best variety or varieties of fall wheat at the present time? 7. Is a steeping with blue vitriol considered a preventative of rust, and what quantity is proper for, say the bushel, and how long in the steep? How much timothy seed is commonly sown for seeding down land with for haying?—J. G., Ilderton, Ont.

[1. There are no bone mills manufactured in this country, and we know of no dealers in them; but the leading seedsmen keep small hand mills for grinding bones for poultry. 2. Messrs. Thos. Aspden & Son, of this city, manufacture mineral phosphates into superphosphates. This is a reliable firm; they will give the price and any information you require. You probably have reference to apatite, and not coprolite, as the latter is not found in the Ottawa district. 3. Write to the firm abovementioned, or other manufacturers who advertise in the ADVOCATE; they will quote prices for you 4. Only to a small extent, nitrate of soda being in greater demand here than sulphate of ammonia. 5. We know of no systematic experiments carried out in this country, except at the Model Farm, Guelph; but we have not published the results, on account of the many inaccuracies in their system of threshing and cleaning the grain, which make the experiments unreliable. 6. Democrat, Scott, Landreth and Martin Amber. 7. Blue stone (copper sulphate) is used for destroying smut, not rust. (See July issue of the ADVOCATE, 1885, page 204.) Sulphur and many of its compounds, also iodine and borax, are the favorite remedies for rust; but as these remedies must be applied to the leaves or other affected parts, they are not practicable in the case of wheat. The only effectual remedy, if your wheat is badly rusted, is to destroy the crop, and see that your neighbors destroy theirs, as the spores are easily wafted from field to field and from farm to farm. 8. From 12 to 20 lbs., according to the condition of your soil.]

Notices.

A meeting of the Clydesdale Association will be held in the City Hall, Guelph, on Tuesday evening 21st inst.

BIRD'S EYE VIEW OF BEE-KEEPING.—By Wm F. Clarke, Beeton, Ont. Just published, 68 pages.

The announcement of the Ontario Business College, Belleville, which stands in the front rank of such institutions, will be read with interest by those contemplating a business education.

The Youth's Companion comes to the front again. It is one of the leading young people's journals of the day, and is filled with interesting stories of adventure, etc., etc., and amuses the old as well as the young.

MODERN HIGH FARMING.—This book (94 pages) is devoted mainly to scientific farming. It is ably and concisely written, Mr. Francis Wyatt, Ph. D., being an able authority on the subject. C. E. Bartholomew, publisher, 22 College Place, New York.

We have received from Tower Publishing Co., Allegheny, Pa., a new book entitled Millenial Dawn—the Plan of the Ages. This work is designed to make plain the teachings of the Bible in a manner calculated to arrest scepticism by *Reason and Scripture*, and recommend it as a helping hand for Bible students.

Every one who has had occasion to drive any distance in a carriage, must be aware of the inconvenience arising from the binding of the wheels, when insufficient oil has been used. By the use of the "Adjustable Sand-Box," all such trouble can be avoided; and we especially recommend our readers to peruse the advertisement of A. F. Miles, which appears in another column.

POLLED ANGUS HERD BOOK.—We have received the first volume of the American Aberdeen-Angus Herd Book, published by the American Aberdeen-Angus Breeders' Association. The work contains 540 pages, is elegantly bound, contains a large number of illustrations, and includes all entries from 1 to 5,220. The appendix contains an historical sketch of the breed, with other interesting matter, and no labor or expense is saved in making the literature complete and in a compendious form.

The National Agricultural Convention to be held at the Continental hotel, Philadelphia, Pa., Sept. 14th and 15th, will be one of the largest and most important gathering of dairymen live stock breeders, and general farmers ever held, as it is to be a congratulatory meeting over the success of the oleomargarine bill in Congress and to take counsel for the further promotion of the interests of agriculture by legislation. All interested in the objects and work of the American Agricultural and Dairy Association are cordially invited to attend. For cards of admission, address the secretary, F. K. Moreland, 169 Chambers street, New York City.

Family Circle.

JANET'S FORGERIES

A Story in Three Chapters.

CHAPTER THE FIRST.

Blind!

Nothing else would have mattered much, but he was blind—hopelessly blind.

He was an artist, and had caught cold while out sketching. Inflammation had set in—gone to his eyes; and it was as if a dead wall had been built right across his path of life.

Ten years later it might have mattered less, for the children would have been "out of hand;" but now, with six of them—the eldest but nineteen and only a girl; the youngest seven—and no provision, it was a black look-out indeed.

For Charles Lloyd was not a genius. He had not even audacity, which does almost as well. He painted very nice pictures, true to nature; but who on earth is satisfied with nature? One might as well offer people uncooked meat.

Christmas came, and the ready money was gone. There were some pictures in the studio, but not any finished; however, finished or not, they must go. They packed them up, and sent them to Mr. Lloyd's picture dealer, with a note to say they would be willing to take a low price, as the pictures were unfinished, and they were the last they would ever be able to send—a touch of tragedy Janet thought they would feel. She added she would be happy to send some of her drawings for their approval; and awaited their orders with the calm confidence of one who has not the faintest idea of the struggle for existence.

Incredible! impossible! It couldn't be true!

"Messrs. Pink and Son are returning the 'Woodland Scene' and the 'Morning Walk,' by Mr. Charles Lloyd, as they are sorry to say the pictures are unsaleable in their present condition. They also beg to inform Miss Lloyd that they are unable at present to send her an order, as trade is very bad, and they have a large stock on hand."

Janet sat stupified, with the letter in her hand—"Mother, the pictures are coming back! Pinks' won't have them. What in the world are we to do?"

"Won't have them! Whatever do they mean?"

"I don't know; oh, I don't know—it's dreadful—it's dreadful to think of!" and she started up distracted.

Jack was kneeling on a chair, his elbows well on the table, and a newspaper before him. "Don't run away, Jenny; stop a minute. There's something here. Listen. 'To artists.—Wanted, pictures for exportation. Price must be moderate.—Apply, Moses and Co., Borough.'"

"Oh, Jack, let me see—how providential! What a magnificent opening! Oh, I am so thankful! For exportation! Why, they'll want dozens. Let's write at once; or perhaps we had better go, and then we can see them and get to know all about it, and buy the canvasses and things." The reaction was tremendous. Janet felt abundantly happy.

"But, my dear, it's hardly the thing."

"Oh! with Jack it will be all right, mother; besides we shall really not have to mind 'the thing' any more."

So Janet and Jack went, and they found "the Borough;" then they turned out of that, and up a court found Moses & Co."

Talk about the improvement of taste! Whoever will buy all the tea-trays, wax flowers, gorgeous time-pieces which those warehouses contain is a puzzle.

They were ushered into a little back office to interview the buyer.

"Pictures?" said he shortly. "Yes, well, I'll just look at them. I can tell at a glance whether they will do for us." He seemed very rude and abrupt; but if they had only known how tired the poor man was of pictures!

"There," said Janet. picking out two of her father's, and putting them up with some pride—they were so infinitely better than those in the room.

They all looked at them a minute—the man doubtless lost in admiration. At last the girl looked round smiling, but there was no admiration to be seen; the man merely screwed up his lips and shook his head. Presently he took up one of her own sketches—the worst a long way. "This might do; only it would want a deal more work in it."

"Certainly," she said anxiously. "I could put any amount of work into it. I don't mind work."

"Don't you? Then I dare say we shall come to terms. You must throw a bridge across the river."

"But there wasn't one."

"That doesn't matter; and you must put an old woman in a scarlet cloak in the foreground. Our customers like a bit of life: and the canvas wants covering. There's too much sky; they like it well filled up—plenty for the money. You might put a range of mountains in the background; it would be a great improvement, would a mountain or two. What's your price?"

"I thought three guineas," she said, not liking to ask too much.

The man shook his head. "Forty-eight shillings is our price, and we never give a penny more to anybody."

The sister and brother looked anxiously at each other, but forty-eight shillings was better than nothing; it was rather a queer price though.

"You find your own canvases?" said the man, sharply.

"Of course."

"You had better sign them—not your own name, of course; besides, a lady's name wouldn't do. Sign them—er—let me see, our last man signed himself Montague White: suppose you call yourself Matthew—no, Mark Black; no, perhaps Black would hardly do just after White. Say—er—er—Barrett—Mark Barrett. Don't forget, and bring 'em in next week: forty-eight shillings, and find your own canvases."

"You want more than one, then? It is hardly the thing to do the same subject twice."

The man looked horrified at such unbusiness-like ideas. "It's a dozen I'm ordering, just for a sample—forty-eight shillings a dozen! and if I like them, you'll have to do dozens and dozens all alike."

"Oh!"

CHAPTER THE SECOND.

March. Haverstock Hill. "Show-day" amongst the artists. Carriages, critics, and well-dressed people going from studio to studio.

A rising young A.R.A., Mark Barrett, was looking at his own pictures before the arrival of his visitors, with that "divine discontent" which, unfortunately, is not very common amongst inflated young artists.

Some ladies came in—people he knew quite well and had sent cards to, but he couldn't for the life of him remember their names. He tried to make up for it in "gush." "So glad to see you. How kind of you to come!"

"Not at all; delighted! Dear, dear, how very nice!" and the elder lady put up her glasses. "What a very fine picture! Worthy of Millais, I declare!"

Mark Barrett went red, not with gratification—it was a portrait of a provincial mayor, and he had not put his best work into it, as he ought to have done.

More people came in; amongst others, some friends of the mayor. "How do you do, Mr. Barrett? Very happy to meet you again, sir. Saw you last in our council chamber. You remember me: Mr. Alderman Whitley, sir. Now let's have a look at our worthy mayor. Very good, very good; just like him, is'nt it, my dear?" turning to his wife. "Eh?"

"Well, it's like him in the face," said the little woman doubtfully; "but I think myself that the waistcoat buttons are a trifle too small."

"So they are, so they are. Trust a woman for telling you your faults, Mr. Barrett, eh?"

A City man came up to him. "I could have picked up one of your pictures for an old song the other day, Mr. Barrett," in a loud, cheerful voice, as if it was a good that all the room would like to hear—and perhaps they did.

"Indeed, what was that?"

"River scene; bridge, mountains, old woman in scarlet cloak. I should have bought it, being yours, only the frame was such a gimcrack affair."

"You are mistaken. I never did such a thing in my life."

"It had your name on, I'm perfectly certain."

"What were they asking for it?"

"Five-and-twenty shillings."

"You *must* be mistaken," in deep disgust.

"Very well; if you don't believe me, you can look for yourself. I have the address in my pocket."

Mark was so much annoyed that the very next day he made pilgrimage to the City. He determined to get to the bottom of the mystery. Most likely it was a name that was something like his; but it might be a forgery, in which case he would have the fellow punished. He found the picture-dealer's—at least, it wasn't a picture-dealer's, it was a draper's—and there, sure enough, amongst oleographs and rubbish of all sorts, were three pictures, fearful things, signed "Mark Barrett."

However, the shopman directed him to Moses and Co., Borough.

He hurried on there; it was dinner-time, between twelve and one; only a boy in charge.

That was fortunate; he got the address without any trouble: Miss Janet Lloyd, Ivy Cottage, Hoxton, Surrey.

"A woman, after all. What pests those women are!"

CHAPTER THE THIRD.

"Now, Jack, I'll put in the bridges while you follow with the old women. We must hurry along. If we don't get these off to-night we shall be in a fix for money to-morrow."

"Well, never mind, Jinney; don't let's worry more than we can help. Do you think this old woman will do?"

"Ye—es; put plenty of colour on and smooth it down well. Whatever would the public do without 'Mark Barrett's works of art?' "I do hate calling myself 'Mark Barrett,'" signing the name in a corner, as the door opened.

She didn't turn round—she was too busy—until their little servant said, "Mr. Mark Barrett, please, miss."

Poor, white, over-strung Jane dropped her palette "butter side" down on the only decent carpet in the house as she turned horror-struck to face a gentleman—a Mark Barrett in the flesh. Curly-haired and blue-eyed, certainly, but ferocious. She simply could not speak for a moment.

Even Jack was speechless; he turned very red and tried to stand in front of the pictures with the name on, but as there was a whole row of them all alike, the feat was beyond his powers.

Mark had come straight down from London in a furious rage. Every "pot-boiler" he had seen of poor Janet's only made him more angry.

He marched into the house as soon as the door was opened; it was quite possible such a person as that might lock him out; however, the little servant was not evidently up to it, and most fortunately showed him into the very room where the forgeries were going on.

There was the fictitious "Mark Barrett" herself—caught red-handed, literally red-handed; she had been signing the name in vermilion, and the palette in falling had smeared her hands. Mark was rather taken aback as he looked at the pale trembling culprit, with her great horror-struck dark eyes. He looked at the row of wretched daubs, twelve of them all alike, and at Jack's red face, short trousers and shrunken jacket, and his agonised attempts to hide the twelve staring "Mark Barretts."

But it wouldn't do to give way to sentiment and have his judgment warped by a pretty face, like a British juryman in a breach of promise case. The very thought made him stern.

"I will not apologise for my intrusion," he said; "for I have no doubt you have some idea of the cause of my visit."

Janet, who would have broken down at a kind word, resented this unjust harshness.

"Perhaps you will be good enough to explain. I am not aware that I have done anything so very wrong."

Jack felt very angry. He was longing to defend his sister, but couldn't think of a telling speech. "Oh! to be a man—a cool, self-possessed man."

"Not done anything wrong, do you say, madam? Are you, then, so ignorant of right and wrong as not to know that you have committed the grossest forgery? Don't you know that it is actionable?"

The sister and brother looked at each other, not very clear as to what "actionable" meant. An idea flashed upon Jack. "You don't mean to say you are going to send my sister to prison? because it wasn't her that did it—it was *me!*" he said eagerly.

"No, no, Jack, that won't do. It was I, sir," turning proudly and contemptuously to Mark, "if you refer to my having signed what I suppose is your name. It is fortunate that I did not happen to sign 'John Brown,' or I might have had a hundred *gentlemen* threatening me instead of one."

"If you had signed your *pictures*"—sarcastic emphasis and wave of the hand towards the twelve—"'John Brown' it would have mattered very little, as that is not a well-known name."

"Indeed!"

"In the art world, I was about to add," furiously; "but it so happens that my name is rather well known, as no doubt you are aware."

"Indeed! I never had the pleasure of hearing it before."

"Indeed?" He really was surprised, and not much flattered.

"No, really, isn't it surprising?" said Jack, rudely—his clumsy way of defending his sister.

Mark coloured up, but he was obliged to accept the extinguisher. He couldn't explain what a great man he was, from an artist's point of view.

"Well" said he, willing to be magnanimous, "since the offence has been committed in ignorance, I will not prosecute this time, on condition that you immediately obliterate all these"—pointing to the twelve names—"and call in all the—er—*pictures* you can possibly get hold of and re-sign them."

Jack whistled. "Think of Moses!" he suggested.

"I don't suppose the people who buy them will like that," said Janet. "They've got a trade for 'Mark Barrett,' they say. I don't know what to do. Whatever shall we do, Jack?"

There was a despairing ring about the voice that struck Mark. She turned to him again. "If you would just let us send us off this dozen it would give us time."

"Not another picture! You have done me incalculable injury already."

"I'm very sorry. Will you wait just a minute? I should like to consult my father. He was a painter himself, but last year he became blind. That's the reason we have had to do all this," she said simply.

"Is it so?" sharply. This little key gave a clue to the whole situation, but he could hardly believe it yet, it was so different from his idea. He rose and opened the door for her, and was left alone with Jack.

Then there was an awful pause. Jack, with his hands in his pockets, looked out of the window. He had no intention of being civil to this "brute." Mark looked at the pictures.

"Does your sister do many of these things?"

"A dozen or two a week."

"You don't say so! Why, she must work night and day!"

"She does, pretty nearly."

"You shouldn't let her work so hard. She'll kill herself."

"Can't be helped. We've nothing else to live on," and he whistled to keep down tears unbecoming in a man.

More and more shocked and distressed, Mark ventured to hope they got a good price.

"Four shillings each, and find our own stuff."

A howl in the passage. "It's only the children," explained Jack.

"Are there some children?"

"Six of us, and father and mother. I say, I think you might have left 'Mark Barrett' alone. Perhaps you would if you knew everything."

"I am very sorry—very sorry indeed! I didn't know all this, you see. Of course, I cannot possibly let your sister go on using my name; but if you will tell me all, perhaps I can help you a little."

But Janet came back into the room very grave and sad. Mark's heart smote him painfully. He vowed he wouldn't lose sight of this poor family. Janet apologised humbly for the mistake she had made, said how sorry her father was to hear of it, and he would like to see Mr. Barrett for a few minutes.

A few weeks later, when the Academy was getting stale, the town hot and wearisome, Mark Barrett felt it was really his duty to get a little country sketching before the spring tints quite fade away.

A day or two later, and he found himself looking out of a farm-house window not far from Ivy Cottage, and wondering if he might venture to call.

The country is rather dull without anyone to speak to—"a healthy grave" Sydney Smith called it. So not many days—in fact, only a few hours—elapsed before he was chatting comfortably with Mr. Lloyd, talking art, nay, "shop," soul-refreshing to the ex-artist, although so tedious to the "Philistine."

Mr. Lloyd was so delighted to meet with a brother of the brush again that he became quite confidential, told him about his own unfinished work, and what a pity it was. "You know, Janet can paint in a fashion, but she can't do good enough work for that; besides, I am afraid these wretched things she seems to be doing now won't have improved her style. You've seen them, of course? Tell me, as an artist, are they really so very bad?"

"Those I saw were certainly rather—rather—crude, but perhaps she has something better in hand now. I should like to see what she is doing, if you think I might venture. Perhaps I could give her a few hints, you know."

"Thank you very much. I am sure we are greatly indebted to you for your forbearance altogether; but come into the next room and tell me what you think of their work."

Mark was surprised to feel his heart beat strangely at this mild remark. "It must be a touch of indigestion," he impatiently assured himself; but he couldn't help feeling it was a moment that would stand out in his life when he held Janet's nervous hand in his for a second, and she glanced up at him with proud shame.

For ranged along the wall were twelve more pictures, exactly like the others—twelve ranges of mountains, twelve bridges, now in course of construction; and twelve old women awaiting their scarlet cloaks.

"Still busy, I see, Miss Lloyd."

"She is always busy," said her father, with a sigh. "I do wish she could get out a little more—not only for the sake of the fresh air, but I am sure if she does not get more sketching from nature her work will deteriorate."

"Mr. Barrett will tell you that that is impossible, father," said Janet, half in fun, half in sarcasm.

Mark colored a little. He could not deny that it was impossible for anything in the painting line to be much worse; but he caught a faint little sigh from Janet, and Jack looked out of window with longing eyes.

"It's a jolly afternoon," he said. "I say, Jenny, don't you think we might drop it for once? There'll be such a breeze on Ripley Head."

Janet gave him a look. "We'll see when we have done our work, Jack."

Sighing not a little, but prodigiously, Jack took up his brush again. "That means 'never!'" he said. "These beasts will take hours."

Mark hesitated a minute before he descended to the bottom of the professional ladder. "If you will allow me to help you," he said presently, "I think we might finish in time for a walk before dusk. I am very anxious to see Ripley Head myself, and your father was kind enough to say you would show me the way," looking at Jack, "if Miss Lloyd would allow me the pleasure of accompanying you?" looking at Janet.

"We shall be most happy," she said; "but I can't think of troubling you with these. I dare say Jack and I can finish in two or three hours."

"But I enjoy painting, and I have nothing in the world to do this afternoon. Here, Jack, lend me a palette. I'll go on with the trees."

A month or two ago Mark wouldn't have believed it if he could have seen himself now, diligently working in trees by the dozen, trying to ingratiate himself with an overgrown boy, and manœuvring for a look from a "brazen forgerer."

The little maid brought them in some tea, and they worked away cheerily—Mr. Lloyd looking in now and then, enjoying the fresh life in the house.

When the sun was beginning visibly to sink, and the last old woman was fitted with her red cloak, the young people got ready for their walk.

Janet, from some undefinable instinct, put on her most becoming, but by no means her newest, hat, and plucked some scarlet geraniums for her neck, which burned bright against her black dress and pale face.

But not so pale. As they stood on Ripley Head, watching the sun quickly sinking on the horizon, long out of sight from the valleys, the reflection of the red and golden clouds wrapped the girl in a halo of glory. "What a wonderfully beautiful creature!" thought the artist, entranced with the "effect." She was by no means beautiful, but he thought her so, which was enough. It was sunrise for Janet, not sunset.

Jack had many a time helped his sister down the steep side of Ripley Head. He was going to do so now, of course (even the biggest of brothers are not very "sharp" where their sisters are concerned); but Mr. Barrett happened to be nearer, and offered his hand, and, though Jack was a dear boy, there was, strange to say, something firmer, and warmer, and closer in this grasp.

The mother, dulled perhaps by her troubles, was vexed with her daughter about this time. She was so unreasonable. She actually cried—not openly, but quietly and unseen, as she hoped—because she could not have a new gown, and Janet was foolish enough to spend a shilling on ribbons, which might have been much more profitably spent on stockings.

But Janet's instinct was right. Though nothing on earth will sunder souls that are fast and firmly knit, the merest trifle will turn aside the first inclination. Besides, to attract is a natural, healthy instinct, and to be attracted—why, no one would if they didn't like it.

One day it dawned even upon Jack's brotherly understanding that Janet was different somehow, and it wasn't only the geranium in her dress and ribbon at her waist.

They were painting as usual, and, as was now not unusual, Mr. Barrett was helping them, when the bungling, well-meaning brother struck in—

"You've been an awfully good friend to us, Mr. Barrett, especially to Janet and me—getting us orders and all that; but there's one thing you've done that I don't believe anybody's noticed but me, and that is, you've made a great alteration in Jenny."

"Nonsense, Jack, nothing of the kind!" she burst in, horrified as to what he would say next, her face almost as red as the geraniums.

Mark, standing by her, looked down on her, bit his lip, and began to wish Jack would go out of the room.

"I know what I'm talking about," said Jack, with the calm confidence of ignorance, and blundering like a big bluebottle fly; "she's as happy and cheerful as anything now, and I know it's you, because she's so disappointed when you don't come."

"Jack, be quiet, it's all nonsense. Don't be silly!"

"She was very down at first about the name, you know, and Moses was very mad with her because she wouldn't sign 'Mark Barrett' any more."

"Of course not! I shouldn't think of such a thing," she burst out passionately, "after all you said," turning to Mark. "You may be sure I shall never make use of your name again."

"Won't you?" he returned. "Do you know, I was rather beginning to hope you would."

In great surprise Janet looked at him, but something in his eyes made her drop hers.

"With a little addition," he said, in a low tone.

"Oh, my!" struck up Jack, enlightened at last. "I never thought of that. Here, I'll go and get some dinner—tea, I mean. You can come when you're ready."

A. A. E.

The Household.

Health Notes.

DR. FOTHERGILL, a greatly respected English authority on dyspepsia, speaks strongly in favor of milk puddings and stewed fruits for the dyspeptic, the bilious and the gouty. He says: "Sugar is undoubtedly objectionable to many, but it is by no means necessary to add sugar to stewed fruit. If the acidity be neutralized by a little bicarbonate of soda, the natural sweetness of the fruit will be brought out and the dish be made more agreeable than though artificially made sugar were added."

Every housekeeper knows that profuse supplies, some of which must eventually be thrown away, are wasteful. But all do not recognize that a far larger amount of food is wasted in the eating than in the leaving. Its purpose is the nourishing and strengthening of the body, and all that is consumed to this end is well and economically used; but whatever interferes with the regular operation of the physical functions, and by its quantity or quality lowers the healthy tone of the system, is wasted more surely and harmfully than if left to decay.

For cold in the head a good remedy is powdered borax snuffed np the nostrils.

Water of Ammonia, or Spirits of Hartshorn.

A few months ago we suggested that housekeepers should keep a bottle of lime-water at hand, and mentioned some of its uses. Another alkaline solution, the water of ammonia, is also of great utility in the household. This is a solution of the gas ammonia in water. Ammonia is formed when animal matters are distilled in a certain manner; the early chemists produced it from the horns of the deer or hart, and as they regarded everything that was distilled as a "spirit," they called that spirits of hartshorn. The gas, ammonia, is invisible, but we can readily recognize it by its strong and pungent odor. One of its peculiarities is the readiness with which it dissolves in water. At ordinary temperatures water will dissolve over 600 times its own bulk of the gas. The liquid sold by the druggists as spirits of hartshorn, is merely a solution of this *gas in water*, hence the more accurate name for it is water of ammonia. Two kinds are kept in the shops, one three times as strong as the other. If simply water of ammonia is asked for, the weaker kind is given; to procure the other the "strong" must be designated. To keep it, the bottle must be closed by a well-fitting glass stopper which is waxed, or by a rubber one, as it soon destroys a cork. When applied to the skin, ammonia is a powerful stimulent, and the strong solution will blister very promptly. It is usually applied externally in the form of a liniment. If one part of ordinary water of ammonia be mixed with two parts of olive oil, they form a liquid soap which is known as volatile liniment, and used wherever the stimulant action of ammonia is needed, especially in the sore throats of children.

Being strongly alkaline, it is useful to neutralize acids, and when strong acids are spilled upon clothing or other fabrics, an immediate application of ammonia may arrest their destructive action. When black fabrics are discolored by most acids, ammonia will restore the color. The readiness with which it combines with oil and grease of all kinds makes it most serviceable in removing such articles from the clothing. Applied to a grease spot, it forms at once a soap with the oil or fat, which may then be washed out. Unless the application be followed by washing with water, it will do lilltle or no good. A mixfure of equal parts of water of ammonia and alcohol forms one of the best liquids for cleaning woollen clothing, there being few spots or stains which water will not remove, that will not be dissolved by the ammonia or the alcohol. In using this, apply it well to the spot, and then wash the place with a sponge and warm water. There is no way in which hair-brushes and combs, especially fine ones, can be kept in good order so easily, as by an occasional washing in water (blood warm), to which enough water of ammonia has been added to make it smell rather st·ongly. A washing in this at once cleanses a soiled hair brush and makos it look as bright and as good as new.

Men and Wemen.

Men love things, as facts, passions and estimates, and women, persons; and while men regard only abstract scientific facts, a woman looks only at the person in which they are embodied. Even in childhood the girl loves an imitation of humanity, her doll, and works for it; the boy gets a hobbyhorse or tools and works with them. But the noblest quality wherewith nature has endowed woman for the good of the world is love—that love which seeks no sympathy and no return. The child is an object of love and kisses and watching, and answers them only by complaints and anger, and the feeble creature that requires the most repays the least. But the mother goes on; her love only grows the stronger, the greater the need, and the greater the unthankfulness of its object; and while fathers prefer the strongest of their children, the mother feels more love for the feeble and garrulous.

TO CURE DROPSY.—We see it asserted, though we do not know upon whose authority, that a tea made of chestnut leaves and drunk in the place of water, will cure the most obstinate case of dropsy in a few days.

Minnie May's Department.

MY DEAR NIECES.—As many questions are asked at this season concerning pickling, I purpose giving a few hints about that article of food, the preparation of which is one of the simplest and easiest things in cookery. Yet pickles are decidedly not a nourishing food; to the best stomachs only appetizing, and to the weakest positively injurious. Still people will eat them, therefore we must know how to prepare them properly, and after all, perhaps, there is little doubt that things so generally craved are of some benefit if taken in moderation.

To look at the matter philosophically, a "pickle," as Dr. Graham says, "is merely a vegetable receptacle for vinegar." Any vegetable tissue that is not so fibrous or tough as to be unpleasant to masticate, and which has no disagreeable flavor of its own, will answer for pickling.

It is customary to salt pickles before putting them into vinegar. Why is it? It has nothing to do with the flavor. The finest pickles are those from which the salt is most completely removed. It is simply this: When a fresh vegetable is soaked in salt water, the brine draws out the natural juice from the vegetable and takes its place, therefore soaking them in water again to remove the brine (the former being less dense than the latter) fills the tissues of the vegetable or pickle with water, so that when put into vinegar it is more readily penetrated by that liquid. It is necessary to have good vinegar, and cider vinegar, though dark in color, has the most agreeable flavor, and home-made pickles should be prepared with regard to flavor rather than appearance.

If freshened pickles are put into not very strong vinegar, the water with which their tissues are filled so weakens the vinegar that the pickles are not only tasteless, but will not keep well.

Pickles keep best in wood or stone ware. Anything that has held grease will spoil pickles. Be sure and use enough vinegar to cover them well. Tie the spices in small muslin bags and put into the vinegar.

It is not necessary to enumerate the things that may be pickled, as there are but few fruits and vegetables that may not be so treated, but I will here give a few recipes.

PICKLED WALNUTS.—Procure one hundred walnuts (young enough to be easily pricked; if the shell is felt at all they are not fit for pickling); prick them all over with a fork; make a strong brine by boiling four pounds of salt in a gallon of water, skim it, and pour it over the walnuts; let them remain in the brine nine days, stir them every day, then take them out, drain, and put them on dishes in the sun; let them remain until black, which will be in about three days, then put them in a jar, with four small onions (stuck with six cloves each) and twenty-four bay leaves. Take five pints of vinegar (rather less if the walnuts are very small), boil it for ten minutes with one ounce of allspice, two ounces of bruised ginger and a quarter of a pound of whole black pepper; pour it boiling hot over the walnuts, let them stand near the stove all night, and tie down the next day.

MUSTARD PICKLE.—One hundred small cucumbers, two quarts of small onions, two quarts of string beans, two quarts of green tomatoes, two heads of cauliflower. The vegetables need to stand in salt and water over night. Drain in the morning and cover with vinegar; boil twenty minutes. Mix one quart of mustard and ten cents' worth of turmeric powder in one extra quart of vinegar about ten minutes before taking off the fire.

TOMATO RELISH.—Slice one peck of green tomatoes; chop six green peppers, four onions, strew one teaspoonful of salt over them and let stand over night. In the morning drain off the water and put in a kettle with vinegar enough to cover them, one teacupful of sugar, one grated horse-radish, a teaspoonful of cloves, allspice and cinnamon. Boil until soft and pack in jars.

MUSHROOM CATSUP.—Put the mushrooms in layers, with salt sprinkled over each layer, and let them stand four days. Then mash them fine, and to every quart add two-thirds of a teaspoonful of black pepper, and boil it in a stone jar set in boiling water two hours. Strain without squeezing; boil the liquor, let it stand to cool and settle, then bottle, cork and seal it and set it in a cool place.

PICKLED CUCUMBERS.—Wipe *small* cucumbers, put them in a jar, cover with boiling brine made with six ounces of salt to each quart of water; cover the jar, let it stand for twenty-four hours. Take out the cucumbers, dry one by one, and put in a dry jar with a few bay leaves, then put in a saucepan half a pint more vinegar than it took brine to cover them. For each quart of vinegar add one and a quarter ounces of salt, one ounce whole black pepper and one ounce bruised ginger. Boil five minutes and pour an ounce over the cucumbers; cover the jar with a saucer and let it remain three days, then pour off the vinegar. Boil it up again; when it boils turn the cucumbers into it and simmer for two minutes, then put back into the jar, cover with a saucer until next day, then tie down. Other things may be pickled in the same way.

Work Basket.

WINDOW ORNAMENTS.—Large sea shells will hold soil enough to support trailers and form an especially pretty window ornament. Holes may be bored through the edges, and cords fastened in them to hang by. The rind of the gourd and of the scallop squash make nice baskets for drooping plants. Halves of cocoanut shells in their natural state or embellished are also very pretty. These may be filled with Lobelias, Tradescantia and Moneywort.

TRELLIS FOR IVY.—Take a common window garden flower box the required length, and mount it on castors. A number of laths of wood, as long as the frame is to be high, must be placed upright at intervals all along the box against the back of it, and resting on the bottom of it. Nail them in their places. A number more laths, as long as the box is wide, must now be fixed across these, beginning with the first an inch above the box. Fix it across by two tacks, one at each extremity, and then to every upright lath by means of a fine flower mounting wire. When all the laths are on, the trellis work should be painted green or some contrasting color to the leaves, the box filled and ivy plants set, which will cover the trellis completely as they grow. The front of the box may be set with Lily-of-the-valley, violet roots, or any desired plant.

KNITTED FASCINATOR.—Materials—1 pair of wooden knitting needles, size of the end of little finger, 2 skeins of cream-white Shetland, the more wiry the better, 1½ yards of cream-white ribbon, about an inch wide, to make bow for head.

Cast on 88 stitches. * Knit across five times plain.

6th row—Narrow and throw the thread, narrow and throw thread, etc., this makes a row of holes. * Repeat from "star to star" unti you have eight rows of holes, and are ready to make the ninth, then divide the stitche equally, knitting each half separately (making two tabs) until you have ten rows of holes and the extra five rows of plain, then bind off. The knitting is done with two threads. The edge is finished by a crochet of single Shetland. A large loose scallop of seven treble crochets with three chain stitches between each and caught into the top of the treble. The scallop goes from one row of holes to another, fastening down with a double crochet. When done run a string through the upper row of holes and draw it up tight, turn back the ruffle in the middle and fasten the bow on or in it. Place the bow on top of the head and cross the tabs at the back and bring around in front, and you have a lovely head wrap for winter or summer.

Answers to Enquirers.

B. D. J.—We are unable to give you any actual recipe by which the grocers' pickles are made, but in this issue you will find some good recipes for different kinds. The greenness of the pickles you buy is said to be caused by the action of the vinegar on the copper kettle in which they are scalded, but this causes a poison (verdigris), consequently better not indulged in; but mustard pods and horse-raddish leaves put into the brine will keep them green, and a very small piece of alum dissolved and put in the vinegar is used by some to make them crisp. Pickles put up at factories are done in vinegar made from whiskey, which, diluted, makes a vinegar almost colorless and of a pure, sour taste.

MADCAP.—1. If the hair and scalp are kept well cleansed and brushed, there will be little need of washes, which are apt to prove injurious. A good way to cleanse the head is to beat a fresh egg and rub it into the scalp, occasionally wetting the hands in warm water, softened by borax, until a lather is formed; then rinse the egg all out in a basin of warm water containing a tablespoonful of powdere borax; after that rinse in clean water, dry wit a towel, and comb the hair from the head, parting it with the fingers. 2. You will find your question under "Queries."

X. Y. Z.—1. At the wedding breakfast the groomsman and bridesmaid usually sit at the bride's right hand, and the second couple at the groom's left hand. 2. The bride first places the knife in the cako, and the groomsman cuts it. 3. The bride's health is usually proposed by the bridegroom's father, or in his stead the officiating clergyman sometimes does it, and should be responded to by the bridegroom. No, the ladies do not rise during the toast.

T. M. B.—1. The origin of the term "Windfall" is said to be as follows: Some of the no.

bility of England, by the tenure of their estates, were forbidden to fell any of the trees upon them, the timber being reserved for the use of the royal navy. Such trees as fell without cutting were the property of the occupant; hence a tornado proved a joyful event, as the windfalls were sometimes of great value. 2. No, the Romans are the first said to use feathers in beds.

KATIE T.—1. For your flannel skirt, with pattern embroidered in silk, a knitted lace of fine Saxony would be prettiest, though occasionally silk lace is used. 2. Use velvet, or plush, for covering your frames. Embroider or paint a pretty design across the left-hand upper corner.

YOUNG HOUSEKEEPER.—1. The plain, square folding of table-napkins is best, fancy designs not being liked. The fewer hands a napkin passes through after it leaves the laundry for the table, the daintier is is considered. 2. Starched shirts will iron easier if you let them dry after starching, as you will have to sprinkle them before ironing. 3. A good way to cleanse kettles of onions or other odors is by dissolving a teaspoonful of pearl ash, or salaratus, in water, and wash them,

ROSEBUD.—The hair is worn off the forehead by those who find it becoming. Crimp it and turn back loosely.

PET.—In summer it is proper to allow your canaries plenty of fresh air, which they enjoy. Wholesome air and a lively situation will keep your birds in spirits and health; but beware of placing them in draughts, as many birds contract colds, asthma, and other diseases from that cause. The average duration of a canary's life is from sixteen to twenty years; except when kept for breeding it will last scarcely half as long.

Queries.

Perhaps some of our readers will kindly send "Madcap" the words of the poem entitled, "How He Saved St. Michaels."

Recipes.

GRAPE PICKLES.—Fill a jar with alternate layers of grapes and sugar, and cover with cold vinegar.

TAPIOCA PUDDING.—Soak 1 cup tapioca over night, peel and core as many apples as needed, and fill the cores with sugar; place them in a dish and pour over the tapioca, and bake until transparent.

SUGAR BISCUIT.—One pound of butter, two pounds of flour, one pound of sugar, one cup of milk, one teaspoonful of soda, one tablespoonful of cinnamon. Rub the butter into the flour and add the cinnamon; dissolve the soda in the milk, mix with the sugar, and work the whole to a stiff dough; knead, cut into round cakes an inch thick; lay in buttered pans and bake in a quick oven.

RICE CREAM.—One cup of rice boiled soft, but not to a paste; two cups of milk, four eggs, a cup of sugar vanilla extract, a cup of whipped cream. Make the eggs, milk and sugar into a custard, season with vanilla. Scald the milk first, pour upon this the beaten egg and sugar, and let it get almost cold before you beat in the whipped cream. Set to form in a wet mould on ice. When you are ready for it turn out on a glass dish.

PICKLED PLUMS.—4 quarts of plums, 1 quart of vinegar, 1 lb. sugar; boil the vinegar, spices, and sugar together, and then put in plums and boil a while longer.

COLD SLAW.—Select a white, hard head of cabbage, cut it in two and lay it in water for an hour; when ready shave it with a cutter or sharp knife, very finely; put ½ a pint of vinegar on to boil, beat up the yolk of an egg with a little salt and cayenne, pour the boiling vinegar on the yolk, stir it well and pour it over the cabbage.

British Birds.

With some exceptions, British birds are not so well adapted for confinement as the canary. Bred in confinement for many years, the canary is happy in a cage, whilst most British birds have been caught wild, and generally seem to

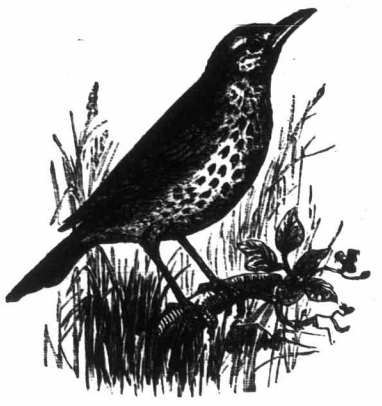


FIG. 1.

feel that they are prisoners. They require also much more varied food and greater care to keep them in health, the great mortality being, perhaps, chiefly owing to a too general sameness of diet. The Thrushes (fig. 1) are numerous in species and widely distributed, some of them inhabiting temperate and even cold countries, and some found only in tropical regions. The common British species are the black-bird, fieldfare, redwing, song thrush, and missel thrush; the song thrush as here given is smaller

FIG. 2.

than the blackbird, its whole length being not quite nine inches. Its plumage is brown, of various finely mingled shades; the throat, sides of the neck, breast and flanks yellowish, spotted with dark brown. It remains all the year in Britain. It feeds on insects, worms, slugs, berries and seeds. If caged it requires a cage eighteen inches high and wide, and twelve inches deep is none too large; there must be plenty of water for bathing as well as drink, but the cage must be kept dry and well sanded. The Lark (fig 2) family is very widely distributed over the world. The common lark, field lark or sky lark is one of the best known British birds, and notwithstanding the tameness of its brown plumage, is a universal favorite, on account of the sweetness of its cheerful song, which it pours forth whilst soaring and floating in the air, and which every one associates with pleasant scenes and delightful days. It is in great repute as a cage bird, and sings well in confinement, but flutters its wings whilst singing, as if still desirous of soaring in the air. It requires a cage with a bow window, in which a turf can be placed so as not to be fouled by the droppings. It needs no perches, but must have plenty of road dust or gravel, and a fresh moist sod daily. If young ones are reared, they want feeding from four o'clock in the morning, and may be given soaked bread mixed with crushed hemp seed, and a little scraped beef and egg. The adult birds are fed much the same.

Solid Sense.

RULES WHOSE GENERAL OBSERVANCE WOULD MAKE LIFE BRIGHTER.

Every time I borrow a newspaper I do a very small act.

Every time I tell the truth I add to my strength of character.

Every time I oppress a servant I am guilty of a sin against God.

Every time I spend a dollar foolishly I am opening a pauper's grave.

Every time I pay rent I am taking that much away from a home of my own.

Every time I buy an article I am encouraging the manufacturer or producer.

Every time I refrain from speaking in defence of a freind I prove that I am not a friend.

Every time I speak a kind word I am adding a brick to my temple of manhood.

Every time I pay debt I am doing right and helping to put money in circulation.

Every time I refuse to do a favor when I can as well as not, I prove that I am growing mean.

Every time I give to distant charities to the neglect of those at home, I am guilty of giving only for vain-glory.

Every time I speak cross and impetuously I'm weakening my nerve-power, and adding to the misery of some one.—[Pomeroy's Democrat.

Household Hints.

If the oven is too hot when baking place a small dish of cold water in it.

When sponge cake becomes dry it is nice to cut in thin slices and toast.

Whitewashed walls can be papered by first washing with vinegar to "kill" the lime.

Iron rust can be removed from clothes by rubbing with lemon juice and laying in the sun

Sunshine on mirrors will injure their lustre, therefore do not hang opposite a door or window.

Hot alum is the best insect destroyer known. Put it in hot water and let it boil until all the alum is dissolved. Apply hot, with a brush, and all creeping things are instantly destroyed.

"What does the minister say of our new burying ground?" asked Mrs. Hines of a friend. "He don't like it at all; he says he never will be buried there as long as he lives." "Well," said Mrs. Hines, "If the Lord spares my life I will."

"Wa-al, hang this thing anyway. The feller at the store told me it was a music stool, but I've been twisting the old thing every way fur an hour and not a bit of music can I get out of it nohow.

Rowing for Girls.

The art of rowing is achieving an immense and increasing popularity in this country. Its recognition as a healthy and invigorating exercise is becoming every day more universal. Besides those who distinguish themselves on the river, a considerable number find in this pursuit a most agreeable and congenial form of exercise. Of recent years, too, many young ladies have asserted their right to enjoy this pastime, and the fact that "our girls" are developing tastes of this kind is a very satisfactory sign of the times. In former days, the rules upon which they were brought up were peculiarly restrictive, and few outdoor amusements were open to them; but now, the desirability of their having some more invigorating recreation than the monotonous "constitutional," or the lessons, however valuable, of the professor of gymnastics, is becoming generally admitted. It should, however, be remembered that before any girl attempts to row she should certainly learn to swim. Every boat is more or less liable to be upset, even with the best and most skillful management; and this is, of course, more likely to occur with those who do not understand how to control it. All those, too, who venture on the water should not only learn how to use an oar, but also understand how to steer and manage a boat in difficulties, so that they may be able to extricate themselves in case of accidents. It is perhaps hardly necessary to say that the styles of rowing on fresh and salt water are quite different, and that proficients in either are generally unable to instruct any one in the other. The more graceful art is that of rowing on rivers and lakes, and from the numerous available pieces of water in this country it is surprising that it is not more dilligently practised. It has been objected that rowing is not a graceful art, and has, amongst other drawbacks, a tendency to make the shoulders round; but, although a careless and slovenly style might have this effect, any one who is well trained will soon become as straight as a lath, and a standing example in disproof of this assertion. In rowing, the back is never bent; and, although the shoulders must necessarily be raised a little in reaching forward, in going back they should be dropped as low as possible. The long even swing, with the elbows close to the sides, the head erect, and every muscle in play, is all that the most ardent admirer of calisthenics could desire, and so far from developing an ungainly or awkward carriage, should have an exactly contrary effect. Rowing for mere amusement is not, however, entirely free from inconveniences, and one of the most unpleasant and common misfortunes that can happen to beginners is that which is familiarly termed "catching a crab." This disaster occurs when the oar is allowed to turn in the water the wrong way before taking it out; the water then keeps the oar down, and the handle bears the rower backwards. The moment it is felt that this is likely to happen, the oar should be smartly lifted out of the rowlock, and "shipped." If this be done quickly, the annoyance of being knocked backwards off the seat may be avoided.

Sculling is, perhaps, in some ways even pleasanter than rowing, and is still more suitable for girls. The sculler sits, of course, in the centre of the boat, and must keep her back straighter and her shoulders lower, if possible, than when rowing, since the strength of the stroke depends very much upon the drop of the shoulders. It would be as well for beginners not to attempt to scull in a "skiff" or "fuuny" until they are quite masters of the art, for in either of these light craft they would otherwise almost certainly be upset. The ordinary sculling-boat is, however, tolerably safe.

Canoeing has long been one of the recognised pastimes of ladies, since it is supposed to be a pretty exercise. Paddling is, however, really a motion of the arms alone, and although it is seldom made laborious, it is certainly very fatiguing. In rowing, as we have seen, all the muscles are employed, so that the labor is divided amongst them. Nevertheless, from the small draught of water which a canoe makes, many otherwise impassable streams can be successfully navigated in one, and in the heat of summer it is very delightful to paddle quietly beneath the shade of overhanging branches near the bank of a river, although such an amusement is hardly worthy of the name of exercise.

Sea-rowing is certainly not very graceful, and is so totally different from rowing on fresh water that even good oarsmen often find themselves in some difficulty on the sea. So fatiguing is this branch of the art that it cannot be recommended as a suitable pursuit for girls. If any girl who has learnt to row on fresh water essays to do so at sea, at a time when it is anything but quite calm, she will quickly find that the rules which apply to this branch of the pastime are totally different, and will run great risk of "catching a crab," with the most disastrous results. The fittings, too, of sea-going boats are usually very bad; and in many of them rowing is only possible under the most awkward conditions. At the same time, if girls were to learn enough about the management of a boat to know what—or rather, what not to do—in an emergency, many disastrous and fatal accidents might be avoided. Every one who has had the management of a boating party knows the anxiety which the nervous trepidation of some, and the utter want of presence of mind in others, cause. Innumerable accidents have been caused by ladie jumping up when the boat gives a roll, when, if they merely sat still, and as near the centres of their seats as possible, they would be in no danger. The difficulty of making up a party is greatly lessened if they are able to use their oars, or sculls, and excursions which are now made only very seldom might then be frequently enjoyed, and with but a scanty escort. It would be difficult to devise a more tempting programme for a fine afternoon than for a party of girls thus to explore some unfamiliar waters.

The Codfish.

"The codfish is the only Annymal that ain't got no neck, there ain't but one kind of a fish in the World that lives on the land and Flys round in the air, and that is the fish hawk. A codfish has a large mouth and my school Teechers got a large mouth too. Two kids got fitein in the vestry one day and one of em pulled quite a lot of Hare out of the other kids Hed and the Superingtending pounded one of his Eeers with a book and so they quit. A fish would look funny if they had legs and could run."

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—The sweet September days are at hand once more. Boys and girls who have been off for their holidays are trooping back to their homes and beginning to think of school, feeling ever so much stronger, fresher and brighter to begin the lessons that have for a time been banished from the mind.

There is great excitement among the boys and girls at present over Forepaugh's great circus, which is exhibiting all over this country. How well I remember the first show I ever saw—the huge elephants, the giraffes with their long necks, the very wild and savage animals, and all the different kinds of living creatures that walk, fly, creep and crawl over the earth! I think such shows are very instructive, and I hope all my nephews and nieces will ask their parents to take them to the circus when it comes to your town or city, and to whichever one of you that sends me the best description I will give a handsome prize.

UNCLE TOM.

Puzzles.

1—BURIED ADAGE.

1—A man cannot serve two masters.
2—If he be a defaulter, why retain him in your service?
3—You must confess, Edgar, you gave up first.
4—When I saw his sad condition, I could not restrain my tears.
5—Oh, Alfred, I thougnt you would never come.
6—Has not the storm ended yet? ADA ARMAND.

2—DROP-VOWEL PUZZLE.

-cl- -u h- -s- -nd sm-l-ng f-c- w-ll br-ng g- -d l-ck t- -ny pl-c- ADA ARMAND.

3—CHARADE.

Obedient to a mute command,
My first flies far and fleet,
Frantic across the listening land,
Unhelped by wings or feet;
And often bears from love's fond hand
My second dear and sweet.
WM. WEBSTER.

4—SQUARE WORD.

1. Belonging to the sky. 2. A rent. 3. Demention. 4. To bring up.
S. F. REDMOND.

5—HIDDEN TREES.

1—How that young man tries to cut a shine.
2—Florence dare not go so near the well.
3—On the return of the boys the royal arches were removed.
4—If you will give me a pea, Charlie, I will show you a nice trick.
5—Tell the girl to pin everything on the line.
6—Marco and Will, O what will become of us. LOUISA F. REDMOND.

6—ARROW-HEAD.

Diagram:

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1. A letter. 2. A cave. 3. A piece of poetry. 4. A rival. 5. A list of names. 6. That which mitigates. 7. Complete. 8. To enwrap. My primals is an intercessor, and my centrals is a meteoric stone.
FAIR BROTHER.

7—CIPHER.

Snt tfssot fse sua dahosn watc aa iedn d asii ae giisls sn htbtath htws rlia.
FAIR BROTHER.

8—TRANSPOSITION.

Fo ruyo ssandleg denl a melag
Tuno oluss atht vesirh;
Wosh meth ohw kard sworors marset
Dlesbn tihw 'shepo gritbh evirr.
FAIR BROTHER.

9—NUMERICAL ENIGMA.

If we 11, 2, 20, 7, 23, 12 to win a prize.
We must 5, 15, 1, 25, 18, 21, 14 to do our best;
Work with a will and spirit too,
'Twill put our 16, 3, 6, 24, 19, 26, 9 to the test.

Now always keep this thought in view,
Our 13, 8, 4, 22 we should improve;
As moments lost will ne'er return,
We should keep on the move.

Now, if "this motto" you would know,
Just take your pen and ink,
Write one, two, three, and so keep on,
Till you have found each link.
FAIR BROTHER.

10—ILLUSTRATED REBUS.

Answers to August Puzzles.

1—Better late than never
To amend endeavor,
Ere the chance is gone;
Time lost we can't recover,
The past is past and over,
The present is our own.

2—Thomas Moore.

3—
A P T
R U E
I N K
S I X
T E R R E S T R I A L
O P H T H A L M Y
C A R M I N E
R E E K Y
A N T
T

4—Now gold is oft for silver changed,
And that for copper red;
Bnt these two went away to give
Each other change for lead.

5—If every one who's played the fool
Had died and turned to clay,
How many people would be left
Alive and well to-day?

6—Locomotion.

7—Silver moonlight winds are blowing
Softly o'er the summer sea,
Lovely stars in beauty glowing,
Watching o'er my love and me.

8—Gold may be bought too dear.

9—Cowper—Goldsmith.

Names of those who have sent Correct Answers to August Puzzles.

Dariah A. Moore, Chas. Edward Smith, William Boynton, Robert Wilson, Robert J. Risk, Emma Dennie, Ada Armand, May Gertrude Monk, Priscilla A. Fairbrother, Ella Simpson, Geo. L. Montgomery, Frank Gordon, Mary Anderson, Annie Newcombe, Thos. H. Murray.

Throwing Rice at Weddings.

Why do people throw rice about at weddings? Some persons seem to think that rice is an emblem of a future family or of future plenty, others that the throwing of the rice is a symbolical attack on the bridegroom by the relatives of the bride. The same explanation is given of the throwing of old shoes, but that is done at the commencement of any expedition, and has nothing hostile in pretence or intention. As to the rice throwing, this, it seems, was an old custom in Macassar. While the marriage service is going on, says Garvaise, in "Discription du Royaume de Macagar" (Paris, 1688), "one or two of the men servants secretly open a window and keep throwing rice out into the air till nightfall, to divert the attention of the devil, according to their account, and prevent his coming and interfering with the amusements of the wedding." But why the devil's attention should be so easily distracted is left unexplained. The custom in England must be borrowed, as rice is not indigenous, and no one throws wheat.—*Longman's Magazine.*

The Origin of News.

"What do you understand by the word news?" This is a question that was asked me the other day. "Why! something new that has occurred, I suppose," was my reply. "But do you know how the word originated?" I was obliged to confess my ignorance, and imagining my young readers may be as much in the dark, will tell them my friend's ingenious explanation, which she said she came across in an old book, printed long before you or I were born. N, you know, stands for north; E, for east; W., for west; and S, for south; so the four letters were combined together to form the word NEWS, now used for all that is happening north, south, east and west. A newspaper, therefore, tells us by its very name that it is a chronicle of events in all parts of the world. A. C.

A Lesson in Pronunciation.

"How do you pronounce d-o, Mr. Featherly?" said Bobby at the dinner-table.

"Do, Bobby," replied Mr. Featherly, indulgently.

"How do you pronounce d-e-w?"

"D-u-e-w," and Mr. Featherly put on a genteel air for the benefit of Bobby's big sister.

"Well, then, how would you pronounce the second day of the week?"

"Tewsday, I think."

"You're wrong."

"Wrong? How would you pronounce the second day of the week?"

"Monday."

Camping Out.

Those who can afford it, take their summer vacation at the sea-shore or at some mountain resort, the object in selecting a locality, aside from those who are governed by fashion, being to find a place with surroundings as much unlike those at home as possible. But those who most need the summer visit to sea-shore and mountain side, the farmers' and mechanics' hard-worked wives and families, can rarely afford the outlay required. A week at any of those public resorts involves an expenditnre that is beyond the means of the majority. After all, the real object of summer vacations is, change—a change of scene, a relief from the daily routine of household duties, a freedom, for the time, from care, and often a marked difference (sometimes for the worse) in the food. Besides these objects, there may be added the meeting with new people, and seeing new ways, which may or may not be desirable. All these results, save the last, can be had without expense, by a week or two in camp. A neighborhood must be poor, indeed, if it does not, somewhere within a few miles, afford a pleasant spot for a camp. It may be by the side of a lake or river, where fishing can be enjoyed; a hill-side or a mountain top may afford a pleasant place. A desirable spot can usually be found not far from home—indeed, we know of one farmer who does not go beyond the boundaries of his own estate to find a pleasant camping ground. If tents are not at hand, wagon covers, barn-sheets, tarpaulins, or whatever will form a shelter from the dew and rain, may be pressed into the service. The chief point is to provide an abundance of bedding; buffalo robes and comforters, and a plenty of blankets, are usually sufficient, though some may need ticks filled with straw. In starting out for camp, do not take too many things. One of the useful lessons of camp-life is, to show how little one can get along with. The most important part of the outfit is, an abundant supply of good nature; a disposition to make the best of everything, to overcome difficulties, and be always cheerful. A grumbler is an unpleasant companion anywhere, but in camp he is a nuisance. In warm weather, the camp-fire should be at a good distance from the sleeping tents, and precautions taken that no spreading of the fire can occur. It is well to leave all of the crockery at home, and provide a supply of tin plates, tin cups, and cheap knives and forks. Prepare in advance sufficient food to serve for the first two or three days, and then be governed by circumstances. If the locality furnishes fish or game, the procuring of those will afford sport for the men and boys, but it is not safe to depend upon these, and there should be in reserve a ham, a supply of the standard camp-food, salt pork, which, with an abundance of potatoes, hard-tack, dried apples, and coffee, will keep the table well furnished. Have meals at stated hours, let each one in his or her way help in preparing them, and—what is still more important—help in clearing away and washing dishes. Keep the surroundings of the camp in good order. Have a pit in a convenient place for scraps and slops, and provide other conveniences in a sheltered place at a proper distance. If guns are taken into camp, let it be the business of some one to provide a proper place for them beyond the reach of children, and where no accident can occur. See that the guns are always kept there when not in use. Reduce the work to the smallest possible amount, so that the greater part of the day may be spent in rest—in "leisure," is the best meaning of the term. Be sure and provide an abundance of reading matter. Any hard-worked family will retnrn from a fortnight's vacation, or a longer one, of this kind, better fitted to take up the home routine, and perhaps be more appreciative of home comforts.

Spanish Boat-Women.

It is remarkable that though the wine-boats are rowed exclusively by men, many other river boats are managed entirely by women and girls. Small, light, flat-bottom boats, used as ferryboats, or for passengers going up and down the river, or for carrying market produce, are not only worked, but are oftener owned, by women. With white awnings spread over the heads of the passengers in hot weather, these boats are picturesque objects seen from the deep green water of the Douro where it flows through the town. The boat girls always push the oar instead of pulling it. They seem incapable of fatigue, they are buxom and not ill-favored, nd they wear the becoming Portuguese costume. When they desire smartness, as on market days, the correct number of petticoats is fourteen, many old and thick material. These stick out all round in a manner rather perhaps curious than pleasing, and the effect is rather heightened by a form of padding that goes all the way round just below the waist. This heavy costume is completed by a sort of bodice, usually made of stout linen covered with some bright colored material, laced up the front, and tight fitting. It stops short about an inch above the waist, and the white under-skirt bulges out all around. This sort of white skirt, with large loose sleeves, is a real and most effective work of art. Round the neck and on the shoulders it is caught into numerous guagings, and some fine needle work is inserted in front; over this a handkerchief is crossed. Another is put on the head, on the top of which is placed a round felt "pork-pie" hat. The bright silk handkerchief and the black hat are the objects on which all the rustic wealth is lavished. The hat is trimmed with velvet, and between the brim and crown is a row of little black silk tufts. A hat is made to last two years amongst the well-to-do peasants. Its construction is very solid, the felt being nearly a quarter of an inch thick, heavy and hot. These picturesque Portuguese costumes can be seen at their best in the numerous rowing boats that come down the Douro to Oporto on market days. The women then put on all their jewelry, fine ornaments that have decended from mother to daughter for generations. A large gold heart, from an inch and a half to six inches in length, and finely wrought, is one of the oldest forms of these ornaments. The heart is suspended to a string of gold beads, light and well wrought on their surface with a design of clearly Moorish origin. The beads also are heirlooms, and some lucky individuals have as many as twenty rows, each strung on common string. Crosses of filigree work of ancient design are also worn, together with modern cheap lockets of poor German gold.—[Art Journal.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., Sept 1, 1886.

Another month of very dry weather has prevailed over the Western portion of Ontario. We understand that the Eastern part of the Province has not suffered to the same extent. Farmers are now busy getting ready for fall wheat seeding, and the breadth of wheat sown will be considerable.

The land is in fine order. The drought has made the hardest clay land plough quite mellow, so that the stubble land is turning over well, and will be in fine order for fall wheat, in fact better than the average summer fallow of ordinary seasons.

WHEAT.

The future of the price of wheat is still shrouded in doubt and uncertainty, even to those who make the future of this commodity a special study.

The following very comprehensive review of the wheat and crop reports of the world (under date of Aug. 26th), is taken from one of the leading American commercial papers.

Although somewhat lengthy, we think it is of sufficient interest to give in full for the benefit of the readers of the ADVOCATE:—

More or less heavy rainfall has occurred in various sections of the West the past week, notably in the Ohio Valley and portions of Iowo and Illinois, while moderate rainfall has reached a very considerable breadth. In some localities in Kansas, where the drought has been very severe, late rains have aggregated a fall of eight to ten inches. These rains of the past week and previously, have broken the drought in a large portion of the West, but a great extent of the corn crop west of Indiana was beyond being restored to any approach to normal conditions. With a favorable autumn, however, much will result in lessening the extent of damage to the corn crop. Scarcely second in importance to the influence upon corn is the beneficial effects of these late rains upon pastures, and water supplies for stock, an important relief now being secured in these particulars.

In regard to the general situation of the corn crop there is little to be added to what has been previously said. There seems to be little room for doubt of a curtailment in the crop amounting to 300,000,000 to 400,000,000 bushels, compared with last year. But this does not mean a small crop, although the shortage exists in those sections which perhaps have greater influence upon leading markets than other portions of the country. In most of these districts, however, very good supplies of previous growth are still on hand.

Spring wheat harvesting operations are well progressed, but advices as to apparent yield are not yet based upon the result of threshing sufficiently to afford any certainty of indications from that standpoint. As previously expressed, we believe the chances are that the spring growth may prove to be somewhat under the official calculations, and the winter productions fully up to or exceeding the same, so that the aggregate crop may be expected to fully equal the estimates of the Department of Agriculture. Our opinion is not mere conjecture, but based on general information obtained from a large list of correspondents, with a careful application of the same to the relative merit of the different States as to area and usual yield per acre.

Barley is of better quality than ordinary this season, and about an average production. A less proportion of the crop than usual will be fed to stock, owing to the better quality of the grain.

The oat crop is a good one, although somewhat deficient in quantity compared with the

large production last year, and the grain has been harvested in excellent condition.

The hay crop is fully up to the usual quantity, and secured in better condition than ordinarily.

Crops in other countries are about normal, as a rule, outside the United Kingdom and Australasia. The British production of wheat will possibly fall 12,000,000 to 15,000,000 bushels below last year, the smaller figures being the more likely to cover the deficiency. The wheat crop in France is about an average one, and 25,000,000 to 30,000,000 bushels smaller than last year. That country holds moderate stocks, but apparently fully equal to or exceeding a year ago. The stocks of wheat in the United Kingdom are also apparently as large as a year ago, or larger.

The wheat crop in India is about the same as last year, or somewhat smaller, and has been moved rather freely thus far this season, in shipments destined for the United Kingdom and the Continent, and the exports during the year may be expected to about equal the preceding year.

The wheat crop of Russia promises to afford an average production, or better. Last year the apprehensions of shortage from drought occasioned a material underestimate of the crop early in the season; less complaint is reported this year. Official reports show that on July 1 out of 49 provinces wheat was good in 21, satisfactory in 12, average in 3, fair in 4, improved in 4, deficient in 4, seriously injured by drought in 1. The rye crop was mentioned as an average in four provinces, good in 1, deficient in 1, and no mention for other provinces.

The wheat crop of Italy, according to recent official estimate, promises 140,000,000 bushels, against 118,000,000 bushels last year.

The indications for Germany, Austria, Hungary, Spain, etc., are for an aggregate production of wheat equaling but little if any below an average this season.

The wheat crop of Canada will be somewhat short of last year.

The deficiency in Australasia will be largely made up by enlarged surplus of wheat this year in South America.

The wheat producing countries of the world, exclusive of the United States and Canada, promise an aggregate of fully 1,500,000,000 bushels this season, or 35,000,000 bushels below an average annual production for such countries, and 100,000,000 bushels short of last year's crops; in the United States and Canada the production will be about 75,000,000 bushels greater than last year, or say 15,000,000 bushels short of what may be accepted as an average, so that the year's wheat crop of the world as now indicated will fall 50,000,000 bushels short of an average production, and approximately 25,000,000 bushels below last year's crop.

If these calculations be justified by actual results, and it be considered that the United States has an available surplus of previous growth amounting to 30,000,000 bushels, with practically normal stocks abroad and afloat, it is apparent that there cannot be likely to arise any special stringency in the needs of the wheat importing countries during the year, although all the surroundings justify an expectation of materially better average prices than have been realized for wheat during the past year.

CHEESE.

Since our last report the make of July cheese has changed hands at good, fair prices, and should prove satisfactory to the patrons; 8½c to 9c was paid for the bulk of July make of cheese. This figure exceeded the expectations of many salesmen, and the few who sold at 8¼c. and 8⅜c. felt a little sore. August are now all made, and salesmen are now asking 10c., but we doubt if they will get this figure. Should we get some warm rains the pastures would soon be fresh and fine, which, with the prospects of better prices, would soon increase the yield of milk. We think 9½c. is all the British markets will warrant, and this would pay the patrons as well as any other farm product they can raise.

BUTTER

rules very quiet, and prices are not nearly so good in proportion as cheese. Choice Creamery is worth 20c. to 21c. in Montreal, and Western Dairy is quoted at 12½c. to 13½c.

APPLES.

This important crop promises to be very fine this season, in many sections, and, no doubt, many farmers are curious to know what the prospects are for export. Some reports that we have seen say the English crop "is a total failure," while others say the "the crop is large, but owing to the lateness of the season they will do no good, as the cold weather will have set in before they will have matured, consequently the fruit will be small, and of very little value." From these statements we may conclude that the crop, whatever it may be, will not be of much account, and as a natural result our apple crop should bring good, fair prices, if well packed and carefully selected, and marked sorted, &c.

PRICES AT FARMERS' WAGONS, TORONTO.

Toronto, Sept. 1, 1886.

Wheat, fall, per bushel	$0 78	0 79
Wheat, spring, do.	0 79	0 80
Wheat, goose, do.	0 70	0 00
Barley, do.	0 60	0 90
Oats, do.	0 35	0 37
Peas, do.	0 59	0 60
Bran (car lots, per ton)	10 00	00 00
Dressed hogs, per 100 lbs	7 00	7 50
Beef, forequarters	3 50	5 00
Beef, hindquarters	7 50	9 00
Mutton, carcass	6 50	8 00
Hay, (old)	12 00	14 00
Hay, (new)	6 50	8 00

PRICES AT ST. LAWRENCE MARKET, TORONTO.

Sept. 1, 1886.

Chickens, per pair	$0 50	0 65
Ducks do.	0 60	0 70
Butter, pound rolls	16	17
Butter, large rolls	13	15
Butter, inferior	10	11
Buiter, choice	13	14
Bacon	8¼	9
Lard	8½	9¼
Turkeys	75	1 50
Geese	70	85
Cheese	10	10½
Beans, per bush	1 00	1 30
Eggs, fresh, per dozen	15	16
Apples, per bbl	1 50	2 50
Potatoes, per bbl	1 50	1 75
Hops	20	25
Salt (Liverpool)	60	65
Salt (Canadian)	75	80
Hogs	7 50	0 00
Wool (coarse)	17	18
Wool (select)	20	21
Wool (Southdown)	23	24
Tallow (rendered)	4½	00
Cabbage, per doz	60	70
Turnips, per bag	30	40
Carrots, per doz	15	18
Beets, per peck	15	00
Parsnips, per peck	15	20
Onions, per bag	75	1 00
Gooseberries, per bush	1 25	1 75
Cherries (per bush)	2 00	2 25
Currants, red (per bush)	70	1 50
Currants, black "	2 75	3 00
Raspberries (per pail)	90	1 00

LIVE STOCK MARKETS.

Buffalo, Aug 31, 1886.

QUOTATIONS:

Extra Beeves—Graded steers weighing 1,300 to 1,450 lbs	$5 00	@5 25
Choice Beeves—Fine, fat, well-formed steers, weighing 1,300 to 1,400 lbs	4 75	@5 00
Good Beeves—Well-fattened steers weighing 1,200 to 1,350 lbs	4 00	@4 50
Medium Grades—Steers in fine flesh, weighing 1,100 to 1,200 lbs	4 25	@4 60
Light Butchers—Steers averaging 850 to 1,100 lbs, of fair to good quality	4 00	@4 25
Butchers' Stock—Inferior to common steers and heifers, for city slaughter, weighing 900 to 1,100 lbs.	3 00	@3 50
Michigan stock cattle, common to choice	2 50	@3 25
Michigan feeders, fair to choice	3 25	@3 50
Fat bulls, fair to extra	2 25	@2 50

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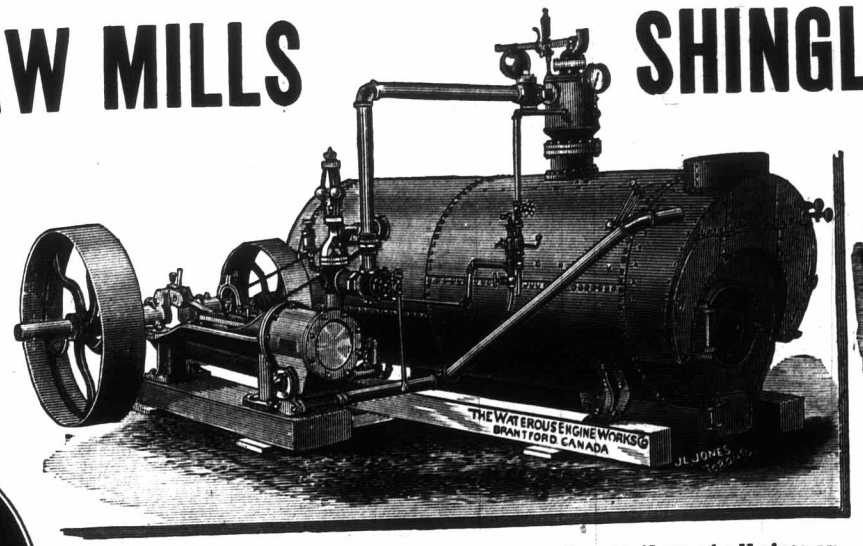

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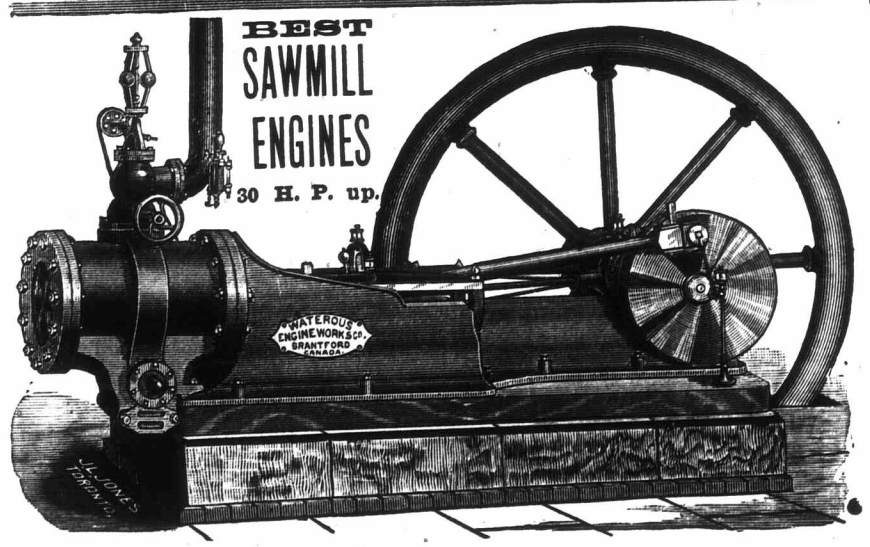

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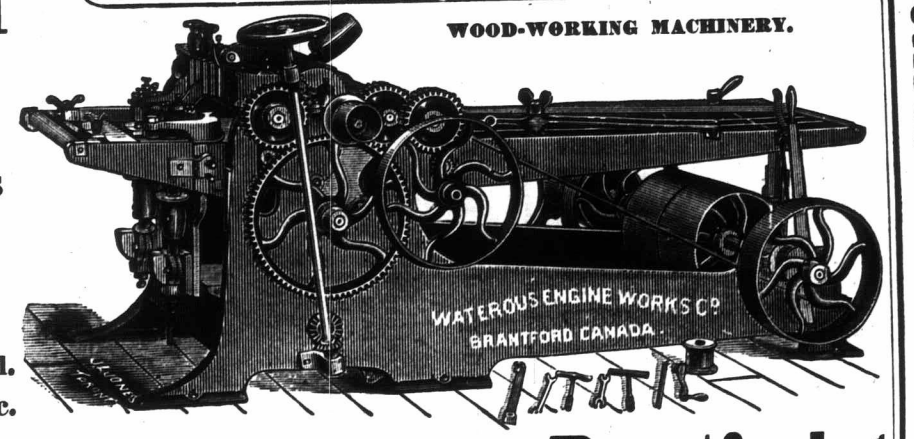

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