

FARMER'S ADVOCATE

AND HOME MAGAZINE.

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THE FARMER'S ADVOCATE

—AND—
Home Magazine.

WILLIAM WELD, Editor and Proprietor
—FOUNDED 1866.—

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Published in the Dominion.

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Spring Wheat.

Many are the enquiries sent to us from different parts of the Dominion, asking which is the best kind of spring wheat we can recommend to them. To the farmers in Ontario residing anywhere south of the G. W. R., we would say, do not sow any. Judging from the past 12 years' experience and observation, we should, at a rough estimate, consider that all the spring wheat raised south of that line could not have cost the farmers less than \$1.50 per bushel. Of course, we have no statistics to show this; but to arrive at a correct estimate, one cannot judge from the very few reports of farmers that have had fair returns. We must add thousands of those farmers that have had miserable returns; also those whose crops were total failures. Corn, hay, grass, &c., in fact, any other kind of farm produce, has paid, and will pay, better than spring wheat, in the part above mentioned. To those living north of the G. T. R. in Ontario, or in Quebec, Manitoba, the Maritime Provinces, or British Columbia, we say sow the variety that is doing best in your locality. We are careful to examine the best and most reliable reports from the best seedsmen, and receive accounts from the American Government; and they spare no expense in procuring and trying every kind, and from no source can we hear of any new kind to recommend to you. We hear that agents are out in some parts of Canada with some new varieties, but we advise our subscribers not to waste their time or money. If there is anything worth having, the seedsmen will supply you. The best

class of seedsmen and nurserymen will be found in the advertising columns of this journal; send to them for their catalogues.

The \$750,000 wheat, or the Ontario Government wheat, has not done any better than other varieties during the past year. The White Russian wheat cannot be distinguished by us or you from the Lost Nation. In the northern part of Ontario it has done well; the Red Fern has also done well; and Fife or Glasgow wheat has done about as well. In some localities one may have surpassed the other, in other localities the same variety has been most condemned. It is our impression that the days of raising and depending on spring wheat, as a source of profit, in Ontario, are fast passing away, and those that abandon its cultivation first will be the best off. Manitoba and the Northwest Territory can raise spring wheat cheaper than we can. We can raise beef, mutton, wool, butter, cheese, poultry, fruit, &c., cheaper and better than they can. Devote your attention to these, and let the farmers that say they cannot learn anything from agricultural papers stick to their spring wheat. Leave your land in grass, or sow corn, barley or oats, and feed the produce to your sheep, cattle, horses or poultry, and you will find the profit in your favor.

A good farmer will conduct his farm on the same principle that a manufacturer will—that is, to make money. No successful manufacturer of reaping machines makes everything; he now purchases much of his goods in parts. Raise your parts—wool, butter and cheese—and buy your spring wheat from those who can raise it cheaper than you can.

Some are even yet enquiring if we know where they can procure the Eldorado or Egyptian wheat, despite the loss that all the farmers we have heard of had with it everywhere. It has been tried in various parts of Canada, and the only place where it has been partially successful is near Thornbury. It is the best looking spring wheat we have ever seen, but will not succeed, therefore we will not recommend it.

Selection of Seeds.

There is nothing of greater importance to the farmer than the selection of seeds. Not even the tillage of the soil and the preparation of the seed-bed require greater care and the exercise of more skilled judgment than the selection of pure seed and of the variety best adapted to the soil and climate. The farmer's profit in tillage or in mixed husbandry depends principally on the productiveness of his crop. A perfect seed is an individual member of a certain species, inheriting all the good qualities belonging to the species, and capable of transmitting those qualities in equal perfection to other generations. The influence of cultivation, soil and climate often changes the nature of seeds so as to impress upon them characters different from the species to which they belong, and in this way varieties are produced. The valuable pro-

perties thus acquired by cultivation, climates and other causes, are, for example, increased hardiness and symmetry of appearance, in the case of roots, and weight of kernel and stiffness of straw in the case of grain. It is well for the farmer in his selection of seed to acquaint himself of the peculiarities of certain varieties, and adapt them to his special circumstances. For seed grain for an exposed situation, select a variety that ripens early, and is by nature hardy. For rich soil, on which the crop would be apt to lodge and the grain be consequently light, let such be selected as will produce short, stiff straw—always selecting that which is most suitable to the circumstances.

For the production of a healthy, vigorous plant, the seed should have in itself a sufficient store of nutriment to supply the wants of the young plant until its roots and leaves are fully developed. This needed nutrition cannot be supplied unless the several parts of the seed be fully developed and its vital powers be unimpaired. It has been shown by experiments, carefully conducted for the purpose of testing the vitality of seed of different ages, that at least half the vital powers of our cultivated seeds are lost after the first year. To this general rule there are a few exceptions, but, as a rule, it is well to select fresh seed.

Not only should seed be so fresh as to possess all its vitality, it should also be fully developed. A puny seed cannot put forth or nourish a healthy, vigorous plant. See in selecting seed, that it has been fully matured. Of this accurate judgment can generally be formed from its plumpness and color. Seed should, as much as possible, be selected that is of uniform size and color. In selecting a sample of grain, this rule is a good one; but it does not hold good in regard to small seeds, such as clover. And in many instances you must, after the most careful selection, rely greatly on the known character of the seed merchant.

The purity of seed is another matter of great importance. Farmers have little idea of the extent to which seeds of weeds are sown by them with their crops. Respectable seedmen take great care to have the seed they sell as free from the seeds of weeds as is in their power; but the farmer selecting for himself must also use every precaution. Some deleterious weeds, that are thought by superficial observers to be indigenous to the soil, have been introduced with imported seeds.

Diseased Stock.

The Chicago Drovers' Journal, of Feb. 10th, is rather annoyed at the article headed "Danger," in our last issue. It plainly admits that they have diseases, but say they are in unimportant districts. If our contemporary would look at his own admission and consider the results, he would at once say that our object in preventing the introduction of any of the diseases into Canada in any form would tend much to the welfare of the States. For if we are not successful in keeping our stock free from disease, the Americans could have no country in the world from which they could depend in obtaining healthy stock to re-stock the localities where disease had rendered stock raising unprofitable.

He also says that "hogs purchased in this market (Chicago) for Canadian packers are the finest the land affords, without any exception."

English Letter, No. 23.

[FROM OUR OWN CORRESPONDENT.]

Liverpool February 4th.

If the old idea that a severe winter will be succeeded by a beautiful summer is to be verified this year, the English tillers of the soil have a good time in store.

The day but one after the despatch of my last letter, a frost of exceptional severity set in, and continued until a day or two of the close of the month. I cannot imagine that the sharpest of Canadian winters could be worse than some of the weather we experienced. There were several heavy falls of snow; trains were engulfed and traffic completely suspended over wide districts. The Mersey, for several days before the close of the frost, presented an arctic picture, and at one time it was feared that the trans-river traffic would have to be wholly stopped; as it was, many of the lines of ferry boats had to give in to Jack Frost, who had converted the whole expanse of the Mersey into a vast field of floating ice. The change when it came was very sudden, and to-day might very well pass for one of the balmy of May. The thick coating of snow protected the young wheat, and the reports as to its present condition are very favorable. One of the most comical incidents of Jack Frost's reign was witnessed the other day, when, amongst the floating packs of ice coming down the Mersey with the tide, was one sustaining on a pole a notice board, "Trespassers will be prosecuted." The notice, in its then position, was, to say the least of it, superfluous.

Foot and Mouth Disease continues to spread, and last week the county of Chester was declared an infected area. A salesman near Liverpool did not pay any attention to the official notice, and was fined \$100 and costs for his temerity. It has not yet been decided whether the lairages in which the Canadian cattle are landed shall be declared a public sale ground; but if this should be done, the salesmen with whom I have spoken do not anticipate any difficulty or loss will be incurred by Canadian shippers, as the cattle can be bought there and shipped to any portion of the United Kingdom for slaughter; but they must not be exposed, in that case, in any market place.

I understand that the Hon. Mr. Cochrane, of Hillhurst, is about to visit this country, in order to purchase a number of Polled Aberdeen and Hereford cattle; and also several drafts of Cotswold and Shropshire Down sheep. Mr. Cochrane's son James, who, I am informed, was a student at the Royal Agricultural College, at Cirencester, is taking the active management of the Hillhurst farm; and, although Shorthorns will still take the leading place there, nearly every breed of cattle in this country will be represented on the estate.

The Hon. J. H. Pope, Minister of Agriculture, has secured eight Polled Aberdeen heifers from the best herds in Aberdeenshire. I understand that he has paid a high figure for them; but they have been specially selected to found a herd of these cattle at his farm at Cookshire, Province of Quebec. I suppose your readers are aware that last year he imported a very fine bull and two heifers of the same breed. This breed appears to be universally coming into power; for I note that a few days ago a valuable lot was shipped to the Sandwich Islands.

The horse trade bids fair to revive this spring, but only for animals of first-rate breed and quality. I observe that the French gentlemen who visited your fair at London last fall, and whom I think I have already mentioned, are of opinion that thoroughbred Cleveland Bay horses should be used as sires in your Province, rather than the

heavy and dull Clydesdales. This, of course, is a matter of opinion; but there is no doubt that, if you breed a horse of quality and style, there is a market here for him. In conversation with a dealer who was proceeding to Ireland the other day, he informed me that he had been hunting for several weeks for a pair of bright bay coach or carriage horses, which should be more than half thoroughbred, or as you call them, blooded, for which he was prepared to pay 500 guineas. At present it is very difficult to get five or six year old horses in Ireland, as the dealers usually have their "guinea" hunters on the look-out, and directly a foal shows any kind of style he is marked, and a buyer usually takes him up at two or three years old. Several of your exporters will remember Lucas's Repository in this city. Mr. Mat. Lucas, who went to Canada for his health last year, died shortly after his return, and now Mr. Corp, the senior partner of the firm, has passed away; and thus one of the oldest firms of horse-dealers and commission men in Great Britain will probably collapse. Several hundreds of Canadian horses have been sold at this repository during the last few years.

In the south and southwest of England ewes are put to the rams at a much earlier period than in the north, in order to supply the London and principal markets with early lamb, for which almost fabulous prices are charged. The lambs which have been dropped lately in such districts, have had a woful time of it; whilst abortions have decimated large numbers of flocks. The outlook for the sheep raiser, therefore, is not a bit better than it was last year. In fact, in some parts of the country, ruin is staring them in the face. Again it may be pointed out to the sheep raisers of Canada that the market for their mutton shows an improving tendency, and is likely to continue to do so for many years to come, seeing that the Dominion on the American Continent, so far as prime mutton is concerned, has no serious competitors. They should, by all means, castrate their ram lambs, instead of running them on and selling them to the United States markets. The advantages of raising wether mutton have been so repeatedly pointed out, that it is surely not necessary to dilate further upon the subject.

At the third meeting of the session of the Royal Colonial Institute, London, on the 25th ult., Sir A. Galt, the High Commissioner for Canada, read a very interesting and exhaustive paper on the "Future of the Dominion of Canada." I cannot, within the limits of this letter, say more than that a numerous and distinguished company heard the paper read; that Sir Alexander drew a most hopeful and brilliant picture of the future of the Dominion, and that in the discussion which ensued, his views were heartily endorsed by the great majority of the speakers.

Farm Laborers.

Farm hands should be required to give satisfactory evidence by certificate from former employer, or others, of their honesty, sobriety, care of what is entrusted to them, a good, moral and industrious character, etc; to be fit companions of the family, free from contaminating or corrupting the morals of children by vulgar and profane language, etc. Clerks and employes in many other branches of business are required to furnish certificates from good authority, of their character as employes, and why not farm hands as well, as they should be equally responsible? Farmers frequently sustain great loss from the wilful carelessness, destruction and dishonesty of those employed about them, as well as the corruption of the morals of their children. They are frequently not fit companions for the children and family, and sometimes much harm is done before the parents are aware of it, as children are frequently and much in the presence of hired men and boys, and on the other hand, men of good character will be employed more readily and on better terms.

From the United States.

[BY OUR OWN CORRESPONDENT.]

Washington, D. C., Feb. 18, 1881.

Last summer Gen. Le Duc, the Commissioner of Agriculture, directed Dr. Chas. P. Lyman, F. R. C. V. S., to proceed to Great Britain and continue his investigation into pleuro-pneumonia as affecting American cattle. His latest report upon that subject, recently transmitted by the President to the U. S. Senate, contains some data and information of interest to Canadian readers.

Dr. Lyman visited Edinburgh, Scotland, and London and Liverpool, England. At Edinburgh he not only examined cattle, but conferred with Prof. W. Williams, F. R. S. E., and principal of the new Veterinary College. Professor Williams stated that during the six months succeeding the arrival of the steamship Ontario in 1879, he had examined portions of the lungs of fully three-fourths of all the animals coming to that port from America and found to be diseased, and that he had not the slightest hesitation in saying that in no case had he found them to exhibit the characteristic lesions of contagious pleuro-pneumonia. From Edinburgh Dr. Lyman proceeded to London, where Mr. Cope, chief inspector of the Veterinary Department of the Privy Council, showed him what specimens they had preserved in fluid of "American Pleuro." Mr. Cope stated that animals affected with pleuro-pneumonia came to them from the ports of Baltimore, Philadelphia, New York, Boston and Portland, and that at that time they were receiving more than ever of those affected. He stated that they had never had a suspicion of Canadian cattle. At Deptford, which is the foreign animals' wharf for London, Dr. Lyman saw some twenty-seven hundred head of American bullocks tied up waiting slaughter. They had been received recently from New York, a few from Baltimore. From London he proceeded to Liverpool. Cattle from the U. S. arriving at this port are by law allowed to remain alive not longer than fourteen days after debarkation, during which time they must remain in the buildings on the wharves fitted up as stables. The Veterinary Inspector of the port inspects the animals when alive, and after slaughter every lung, while the animal remains suspended, is subjected to his examination, and if pleuro-pneumonia is discovered it is condemned. The number of cattle landed at Liverpool from the United States, from June 1st, 1880, to August 13th, 1880, was 10,670, and the number condemned as having pleuro-pneumonia was six. On July 20th, at the Canada docks, were examined 222 cattle, ex-steamship Texas, from Montreal. One of these animals, a fat cow, was breathing rapidly and had a high temperature. She was killed and the lungs examined, but no indications of pleuro-pneumonia were found. Mr. J. W. T. Moore, the Veterinary Inspector of the port of Liverpool, assured Dr. Lyman that he had repeatedly had this done, always with the same result.

Dr. Lyman, in his report, states that the animals coming from Canada to Liverpool are landed at wharves entirely separate from those used for the trade with the United States. The animals coming off ship-board are tied up in houses furnished for the purpose, and after twelve hours rest and quarantine, are subjected to a not very close inspection by the veterinary officer of the port, when, if no contagious disease is found—and there never has been as yet—they are allowed to go inland on the hoof without any further restriction. In this way they became scattered to such an extent before being slaughtered that it was impossible for him to see the lungs as he did those of cattle from the United States; and, indeed, no

officer gives them any examination except as above stated.

The report of the Veterinary Dept. of the Privy Council Office of Great Britain, states that a cargo of swine, consisting of 567 animals, arrived in the steamship Viking at Victoria Docks from Canada on November 14; 42 of them were found to be affected with swine fever (known here as hog cholera). On December 13 a cargo of swine from Montreal, Canada, arrived at Glasgow, Scotland, and among them were a number of cases of swine fever. Altogether there have been landed during the year 1,044 animals affected with swine fever. Of these, 974 came from the United States, and 70 from Canada.

A Bill has been introduced into the Congress of the United States to prevent the exportation of diseased cattle and the spread of infectious or contagious diseases among domestic animals. Should the Bill become a law, it will prohibit, under heavy penalties, any railroad company, steamship, vessel, or any person, from carrying or driving cattle infected with pleuro-pneumonia from one State to another, or from shipping or carrying them to any foreign country. Congress has also appropriated \$10,000 for the purpose of erecting a building in the Agricultural Grounds for the display of all agricultural implements that may be presented to the Department of Agriculture for exhibition. The building will be completed within a year, and will enable all manufacturers of agricultural implements in all parts of the world to place on exhibition specimens of such machines and implements as are used in agriculture. Canada will, no doubt, avail herself of the opportunity to exhibit her best machines, and farmers from all over this land by a pilgrimage to this Department may see the rude, wooden plow of China, the bungling implements of Egypt and India, side by side with the artistic gang-plows, reapers, mowers and self-binders, and all the wonderful improvements of America and Europe.

The reports from a large number of farmers throughout the United States to the Department of Agriculture, on the several varieties of potatoes cultivated during the past year, are uniformly in favor of the "Beauty of Hebron." From Illinois, Indiana, Michigan, Minnesota, New York, and many other States, reports are received from which we extract the following:—"Beauty of Hebron ripened 22 days before the Early Rose. Quite an acquisition." "Matured in 13 weeks; quality unsurpassed." "Fine, large tubers; much better than Early Rose." "Undoubtedly superior to anything I ever saw in this county." "Valuable acquisition; two weeks earlier than Early Rose." "A good keeper; very prolific; a valuable addition to our potato list." The Commissioner of Agriculture says that the testimony is so uniform concerning the merits of the "Beauty of Hebron," that it leaves no doubt that it will supersede the Early Rose, as the latter took the place of the Early Goodrich and other early varieties cultivated fifteen or twenty years ago.

A short time ago, Genl. LeDuc, the Commissioner, received a small lot of the wild potatoes of Chiloe, which he has distributed for cultivation in the United States next season. These potatoes were furnished by the Governor of the Island of Chiloe, in Southern Chili, to the National Agricultural Society of the latter country, and by them sent to this country at the request of an American gentleman long resident there. His letter to Genl. LeDuc, concerning these wild potatoes from the Island of Chiloe, is full of interest. He states that the original potato introduced in Europe, from which stock we have grown the potatoes in

United States, was taken from the Island of Chiloe by Sir Francis Drake in 1585. In the south of Chili, and especially in Chiloe, the potato still grows wild. As a potato loses its special variety in from 12 to 15 years, being replaced by new varieties from the seeds of the potato ball, the present varieties grown in this country (U. S.) and Europe must be at least twenty generations removed from the original stock introduced from the Island of Chiloe in 1585. Naturally changes must have taken place, some for better, some for the worse. Growing under the excitement of manures, in this country and in Europe, in soils of great diversity and at widely different temperatures, it may be that the varieties now in general use are susceptible of fungus diseases, and to the ravages of insects, from which the original stock were exempt. If I am rightly informed, he says the potato in Chili and Chiloe are quite exempt from fungus diseases, which I suspect may have originated from the use of manure; for I have noticed that the wheat of Chili is perfectly free from smut, and that these rich soils are irrigated and not manured.

LOTUS.

The Western Ontario Dairymen's Association.

The annual meeting was held in February, according to notice previously given in this journal. The attendance was not as large as usual. The interest evinced by the ladies years ago was very great; they went for information, but their interest has so abated that only two were seen there at the close of the meeting, and never so few attended before. Many really good men who formerly attended have from various causes absented themselves. One great reason of this declining interest in the Association has been the partiality shown to persons of particular political tendencies, and when such opinions begin to prevail, the great good that should arise from these meetings is apt to be greatly diminished. Political agriculture is dangerous to the interest of the farmers and to the nation.

Previous to the strong political feeling introduced and the public money expended, the Dairymen's Association was progressing famously, and the foundations of all the after improvements were then laid.

For the past two years the principal interest of this association has been the great discussion between the eminent dairy orators, Hon. X. A. Willard and Prof. L. B. Arnold. The former gentleman is an excellent orator, has read a great deal about dairying, and is well posted. He undoubtedly is the champion dairy orator of America. He is shrewd, searching, and has an excellent faculty of appropriating ideas.

Prof. L. B. Arnold has a much different way; he is not the polished orator that Mr. Willard is. He has given the dairy his study, and applied chemical tests (with practical use in the dairy) to a greater extent than any other person in America, and from close observation, tests, trials, scientific and chemical researches combined with actual practice, he has found that cheese can be made of better quality without allowing acid to be strongly developed before the cheese is pressed, than by the old process of developing a strong acidity.

This acid or no acid, or sweet or sour process, has engaged the attention of all our leading dairymen, and the battle has been strong and ably contested. Many of our Canadian authorities had taken a strong stand against Prof. Arnold.

The results of this meeting have completely established the fact that Prof. Arnold's information has done an incalculable amount of good to the dairymen of this Dominion by showing them

the way to make the best cheese. The old plan of making a strong acid or sour curd may yet be the safest for those who have dirty utensils, hogs and filth about their premises; they can by this acid process make cheese that may sell as well to the ignorant who are not aware what a really first-class cheese is, but by the sweet process a cheese of finer flavor, better quality and a more digestible article is produced, and one which when once used in a family would be sought for again.

The Hon. Harris Lewis, of Frankford, N. Y., gave a very useful and practical address and much useful information about various subjects pertaining to the cow, the dairy and the farm. He strongly commended pure air, cleanliness, kindness and clean and nutritious food for the cow. He advised those who intended to try silos to begin in a very small way, and strongly urged on Canadian dairymen to keep the skimmer of all milk made into cheese in Canada. He condemned in strong terms the oleomargarine and the use of lard or other foul fats as a substitute for butter or for adding to cheese made in creameries from skim milk, and trusted that Canadians would not follow the dangerous pattern set by Americans of introducing Trichinosis in the form of butter and cheese; in fact, he admitted that Canadian dairy produce was superior and safer to use than that produced in the States, and hoped that Canadian dairymen would guard their interest and prevent the spurious articles from being made or sold under any guise. He considered the introduction of the skimmer in the cheese business in Canada would be found as injurious to the dairymen of Canada as the introduction of his Satanic majesty was to the human race when he entered the Garden of Eden.

The Hon. X. A. Willard, of Little Falls, N. Y., delivered an extremely long address about a new patent lactometer that he wished to introduce. It was a great advertising dodge, and if it does not prove of more value than his patent milker, his time was wasted. He also gave a long essay on the chemical extraction of various essences. Well, if the President or audience profited by that, we failed to see the utility; dairymen failed to see it also. But he gave many good hints, the most important of which was in regard to the patent law. He showed many instances where dairymen and farmers were fairly robbed by the existing law; for instance, many dairymen had purchased improved implements at a great expense, believing them to be all right, but to their astonishment other parties have come along claiming large sums or threatening law suits, and the dairymen were in danger of losing their implements. He instanced that thousands of miles of patent fences had been erected in the States, the farmer having paid the agents; then a law suit arises about the infringement of some previous patent, and the farmers have to give what these fellows like to ask or pull down the fence, or risk a law suit. He also showed the great carelessness of allowing any person who pays the fees to get out patents without due regard to previous patents. It is right that ingenuity and application should be rewarded; it is also right that our farmers should be protected better than they are from the deceptive patent right men.

OUR LEGISLATURES SHOULD AT THE PRESENT SESSION

Protect the farmers from the deceptive traps that are laid to injure them through patent frauds.

Prof. T. T. Roberts, of Cornell University, treated the meeting with an address similar to one that had been reported in the American press some weeks previous; but he added a great tirade

against stone foundations or bank barns, condemning them in terms not appreciated by those who have them and know the benefit of them. He commended wooden barns and stabling, and commended lining them with cut straw as being superior to stone or brick. He also spoke of the lactometer, showing that it could not be relied on, and that it had been introduced as evidence in a law scrape in the States, and no chemist or expert dared to show which was adulterated milk or which was not by its use in open court.

Mr. D. Burrel addressed the meeting in regard to the silos. He has erected one and spoke favorably of it.

The Canadian speakers were the Rev. W. F. Clarke and Prof. Brown. Mr. Clarke's address was on "honest milk" and he spoke of the frauds that were practiced. He particularly censured and condemned one farmer who had been convicted. The farmer had written to the press to show his innocence, and after Mr. Clarke had finished his address and returned from the platform, the awful culprit, as he had been called, went to Mr. Clarke and shook hands with him and wished to explain; but he could get no chance either that day or the next, and yet he is to be branded and his name sent all over the country at the Government's expense as a rascal. A resolution to that effect was proposed by the manager of the meeting, Mr. Ballantyne, M. P. P., and was carried.

We enquired of a plain farmer at the meeting, who lived in the same neighborhood. In reply to questions he said he did not believe the man was guilty. Another informant said there had been a dispute about the non-delivery of the condemned man's pass-book previous to the tests and trials for which he had been convicted, and the condemned man had made a fuss and insisted on having his rights. This caused an annoyance. One of the convicting magistrates was part owner of the factory, and the other two belonged to the same creed. Prof. Roberts' account of the lactometer on which he was convicted showed that it could not be relied on.

We extract the following from the Toronto Globe:

"Prof. Brown, of the Agricultural College, Guelph, then took the floor, and gave a very interesting address on 'cream, butter and cheese from different herds of cows.' The gentleman during the course of his remarks referred at length to the value of the different articles mentioned, illustrating his remarks by showing clearly statistics which supported his assertions. He had several large placards illustrating the subject placed in full view of the audience. He showed clearly the exact amount of milk necessary to produce certain amounts of cheese, &c., &c., and also fully described the properties contained therein. He also spoke at length on the different breeds of cattle and the relative value of each, and, in fact, referred to everything that would be interesting to dairymen."

We copied the following figures from the various diagrams shown and explained at length by the Professor, nearly all of which he maintained were quite correct from actual tests and careful handling. These are from trials of Shorthorns, Ayrshires, Gallo ways, Devons, Polled Aberdeens and their crosses, and from common Canadian stock.

Pounds of cheese produced from 100 pounds of milk:

	lbs.
From the Devon,	16.28
" Hereford Grade,	7.41
" Canadian,	11.12
" Ayrshire,	11.12

The quantity produced in the season of butter of cheese.

Galloway,	63 lbs.	232 lbs.
Hereford,	65	264
Canadian,	133	433
Ayrshire,	175	582

Length of time that the different breeds can be milked:

Shorthorn,	170 days.
Ayrshire,	210 "
Canadian,	240 "

The average value of a season's milk if made into butter, \$20.30; if into cheese, \$35.95.

Every dairyman there knew from practice that this simple teaching might look well enough in diagrams and to the eyes of theorists, but real practice told them that it was totally wrong. Mr. Brown's trials show that 11.20 lbs. of cheese are made on an average from 100 lbs. of milk. Not any dairyman that we have spoken to has ever produced such a return; and as these figures would be apt to mislead the calculations of dairymen and patrons, we quote the actual result from the returns of the Thames Cheese Company's factory at Nilestown, Ont., which shows that the actual production has only been 10.3 lbs. (ten pounds and three hundredths), instead of eleven pounds and twenty hundredths, and this is estimated as about the average of other factories.

The time it took to deliver this lecture and explain about it was the greater portion of the afternoon when the attendance was largest, and several expressed regret at the loss of time and money. The principle of obtaining correct statistics is laudable, but it is necessary that the Government should publish only those that are indisputable. Professor Arnold's opinion about Mr. B.'s statistics was asked at the meeting. Mr. Arnold said that they were not reliable, and the Hon. Harris Lewis considers the tests made were on too small a scale to give correct results.

We have no doubt that if Mr. Brown was more practical in his management of the Ontario Agricultural College Farm, more benefit would be derived from it, and it would not require \$20,930 Government grant for the year 1881. In fact, many of the farmers of Ontario, who have visited the College Farm, find much fault, and those things which do give satisfaction we believe have been due to Mr. Mills' careful attention. Though Mr. Mills is the College President, we have no doubt the farm is much benefited by his ability. However, the past season is probably exceptional, as Mr. Brown was required to go on the junketing expedition with the Agricultural Commission. Practical farmers cannot leave home in summer and hope to make farming pay.

Mr. J. T. Brill, of Guelph, spoke in favor of creameries; he has invested in creameries and furnishes milk. He contends that butter-making is more profitable than making cheese (what a difference in statements from the Professor of the Model Farm!) But in the discussion that followed it was pretty clearly shown that the profit did not consist so much in the butter, but in the saving and marketing of the skim-milk cheese from the milk and buttermilk that had the best qualities taken from them. This skim-milk cheese was dreaded by the cheese-men; of course it is Canadian cheese, and Canadian cheese has a good reputation, and when made and doctored with American lard filled with Trichina, this creamery cheese may become a great injury to the really good cheese-maker. Perhaps more money might be made by adopting the American process, but if allowed in Canada the cheese interest must be injuriously affected.

THE ELECTION OF OFFICERS—A GREAT EXPENSE INCURRED.

The select few have so hedged themselves from the members that the selection of officers has to be approved or made by this inside party. The names were submitted by this committee and announced to the meeting. This announcement gave offence to L. R. Richardson, of Strathroy, as

he expected to have been made President, having made an arrangement last year that if he supported a certain member for office then, he was to have the support this year. An explanation was demanded, when Mr. Ballantyne, of Stratford, gave away the secret and exposed his pet assistant, the one for whom he has tried to claim more honor than he merited. Mr. Ballantyne then exposed the dishonorable act of Mr. Richardson, the intended President, namely, that Mr. Richardson had written a letter to a certain influential commercial paper in England, stating that the make and prospects of the make of cheese in Canada were and would be far in excess of what would really be the case; and that Mr. R. had done this knowingly and willfully, and for the purpose of effecting the markets for his personal aggrandizement; that the said letter had caused a great loss to many cheese makers in Canada.

The above facts were not denied, but admitted. This resulted in electing the would-be President to stay at home. That was right; but why should Mr. Ballantyne so long keep and conceal such knowledge from Canadian dairymen? It would have shown honor had he exposed it at once, rather than to have it dragged out to defeat an opponent.

Among the attendants were a much larger number of cheese makers seeking engagements than we formerly met. Some in attendance complained because they had received a ticket from the Secretary which stated that arrangements had been made with the principal hotels in Stratford whereby the dairymen would be accommodated for \$1 per day; but in paying their bills they were compelled to pay \$1.50. If those who wished situations had expended 50 cents and have let their wants been known through the columns of the ADVOCATE, they would have had a better chance of finding employment than by their four days lost time and \$8 expenses.

A resolution was passed recommending the Government to appoint Prof. L. B. Arnold to the staff of the Agricultural College at Guelph.

The Government grants \$1,500 to this association. Among the expenditures we find over one thousand dollars paid for printing and advertising.

Last year we made the following offer to the Association, which is embodied in their official report, page 120. Our offer was as follows:

"Mr. President and Gentlemen,—I think it is a very good plan to disseminate information to as great an extent as you can after so important a meeting as this. It was but yesterday I wished to do this very thing and obtained permission to send out one of the valuable papers presented in advance. I think now that I have a plan which may perhaps be more advantageous to the interests of the Association than any that has been as yet suggested. My journal will be out on the first of next month, and if you will select what is most suitable for the patrons and the whole of the farmers of this country, I will circulate them free of charge, even postage. If you will appoint three of a committee to select what is most useful, I will have it out by the first of next month, and if you want any extra copies, I will have them sent out also by the middle of the month, and this will be from two to four weeks sooner than you can get them into the hands of your patrons in any other way. I have taken great interest in this Association and all your agricultural discussions, and I think I could not do more to show that interest than by the offer I have made. I will not only send the articles to my subscribers scattered over the whole Dominion, but to any names you may furnish me, free of expense."

A member of the Association, Mr. Chadwick, replied as follows:

"While I am free to acknowledge that the offer made by Mr. Weld is a very liberal one, I think this Association is quite competent to do anything of this kind themselves. I believe this organization was established to promote dairy industry, and is quite competent to discharge its own busi-

ness. If Mr. Weld wants to get prestige by communicating through his journal any information to the patrons of the factories, he may do so; but I hold that it is the right of this Association to disseminate their own information in their own way. There was a committee appointed to select the articles to be published, and I believe they are competent to do so. I believe in the Association keeping up their own prestige and keeping the right to their own property in their own hands, and if Mr. Weld wishes to use the extracts we desire published, he may do so after we have done with them."

We produce these facts that our readers may judge whether or not this Association is making the best use of the money given them by our Government. Had they allowed us to publish the report in our journal we could and would have had it circulated sooner than they could to all to whom they wished it sent, and in just as convenient a shape as they issued it, besides benefiting the few who take an interest in or know of this Association. Thousands of Ontario farmers, who now receive no benefit from their publication, would receive what is due them—we say due them, because their money was given to this Association, from which hundreds now receive no benefit. The Association published 10,000 copies of said annual report, and we now find, one year after publishing, that not quite 2,000 have been distributed, 8,000 being in the possession of the Association. Such would not have been the case had we published it as we desired; but the farmers and dairymen of Canada would have been benefited by the labors and expenses of this Association the month following their meeting. The Association still talk of distributing the said reports, but how many are likely to take an interest or read a report which is a year old. The idea seems, under existing circumstances, extremely foolish, especially as this year's report is to be published soon. Another point of importance to all is, had we published the report the Association would have saved a large amount of public money. These are the plain facts, and we leave our readers to judge whether or not the Association has adopted the course best suited to benefit the greatest number or otherwise.

The Agricultural and Arts Association and the Ontario Legislature.

MOVEMENTS AGAINST TOWNSHIP SHOWS.

The Local Legislature having gone into Committee of Supply on the item of the grant for agriculture, arts, literary and scientific institutions, Mr. Hay raised the question of lessening the number of small agricultural societies. He would abolish the special discrimination in favor of electoral riding shows, but would prefer to see the special grant to county shows maintained.

Dr. Cascaeden objected to anything like wiping out the small shows, but would like to see the Provincial Association abolished.

Mr. Dryden was in favor of increasing the strength of small societies and diminishing their number, but would prefer to see the special grant to county shows maintained.

Mr. Deroche could not see that small township shows did enough good to warrant the expenditure upon them. He thought the money might be put to a better use.

Mr. Gibson thought some improvement was necessary, and Mr. Ferry believed the wiping out the small societies would be very unpopular.

The amount voted to agriculture and arts, literary and scientific institutions is \$106,750.

The amount granted this session to the Ontario Agricultural College is \$20,930.

At the last meeting of the Royal Agricultural Society of England, on the 1st instant, it was definitely settled that the foot-and-mouth disease was introduced into England by French cattle arriving at Deptford.

Veterinary.

Goitre in Lambs.

BY JAMES LAW, F. R. C. V. S.

(Professor of Veterinary Science, Cornell University.)

The disease in lambs complained of by H. J. G., Melbourne, in last issue, is undoubtedly goitre. It is especially common in the magnesian limestone formations; but may occur elsewhere in connection with any specially debilitating cause affecting the ewes. Also on the limestone formation it may usually be worked off almost entirely by careful attention to the general health, and by the maintenance of vigor, and a strong, robust condition.

The swelling is usually lodged just beneath the throat, and connected with the upper part of the windpipe, but in bad cases it may extend quite to the breast bone. It may be of any size, from a rounded mass, no bigger than a pigeon's egg, and tolerably firm, to an engorgement as large as an infant's head and soft and doughy. It may not interfere much with the breathing, or it may so compress and flatten the cartilages of the windpipe that practically no air can pass through—or it may so compress the nerves of the upper part of the windpipe (larynx) and lungs that suffocation is certain. But in any case the malady is associated with a condition of greatly deteriorated health, and even if breathing is free, it is long before the young animal thrives as it ought.

The swelling will often persist in the older sheep, but in these it rarely does much harm, so that no attention is paid to it. Breeding from animals affected in this way perpetuates a line of weakened constitutions, and serves to keep up the mortality from the affection. A careful examination of the throats of other domestic animals in the affected localities will usually reveal a similar swelling beneath the throat of a certain number, of the horses especially. In this subject, however, it usually appears as two swellings—a right and a left—varying considerably in size, but both round, firm, and smooth. Horses are especially liable to develop these swellings; often some debilitating disease like influenza or strangles, showing that debility and lack of condition are connected with the affection in all animals. As might be expected, unsuitable or insufficient feeding has a similar tendency, and ergoted or musty fodder, or smutty cornstalks, by disordering digestion, and circulation is a frequent predisposing cause. The same may be said of lack of water, as when the springs are frozen up, and, above all, when the sheep are confined to dry feeding.

But of all other predisposing causes of goitre in lambs, none is so injurious as the close confinement of the ewes during pregnancy. We have often noticed that when flocks were kept in confined yards or barns for weeks and months at a time, most of the lambs would perish of goitre, whereas if driven out into the fields every day and a fair amount of exercise compelled, they would come strong and healthy. In a winter like the present, with snow so universal and deep, there is a strong temptation to keep the ewes closely housed or yarded, but on the magensian (Onondaga) limestone, or in localities with much of the debris of limestone in the soil, or with water strongly impregnated with such land, this can hardly fail to cause a high mortality in the coming crop of lambs. No high feeding nor special care can obviate this danger. The natural and best prevention is to give, and even compel, a reasonable amount of daily exercise—half a mile to a mile—at a walking or slow pace. The sheep is a native of the higher lands, and a certain amount of climbing and walking is essential to its well-being, but much more so to that of its progeny. The attempt to replace this and to bolster

up the health by high feeding, only tends to the increase of fat, and to a general laxity and want of tone, which defeats the very purpose for which it was adopted.

But while exercise must be put in the fore-front of protective measures, other precautions should not be lost sight of. If soft or rain water can be obtained, it is to be preferred to hard water. Pure air and cleanliness are all-important adjuncts. A dry resting place and a sunny exposure should be secured if possible. Temporary running down in condition, from bad or insufficient food, or from existing disease or parasites, should not be tolerated for a day. Breeding from too young or too old ewes or rams is to be avoided, for their puny progeny will fall easy victims. So with goitrous parents.

When a flock has already suffered in this way it may be well to give during the later period of pregnancy iodide of potassium, to the amount of half a drachm daily, to each ewe.

The treatment of the lambs is rarely satisfactory, as they too often either come dead or die soon after birth. Mild cases may be benefited by the use of iodide of potassium, 10 grains, once or twice a day, and by the free use of tincture of iodine rubbed over the swelling. In other cases the injection of weak solutions of iodine into the swelling is attended by the happiest results. For this purpose one part of compound tincture of iodine may be mixed with four parts of water, and the mixture injected by means of a hypodermic syringe.

A SERIOUS BREACH OF THE QUARANTINE REGULATIONS AT MONTREAL.

A serious breach of the quarantine regulations has recently been discovered by the Inspector of Stock, which has not been allowed to go unpunished. Mr. Robert Ness, of the County of Beauharnois, who had recently returned from Scotland, brought with him a calf, which was landed at Boston, and, contrary to quarantine regulations, was carried in bond to Montreal, and by a blunder of the Customs officials was allowed to be taken to his farm at Howick. On being reported to the Department of Agriculture, instructions were at once given to the Customs Collector to seize the animal and either slaughter it or convey it in a private conveyance out of the country. The animal was accordingly slaughtered, and the farm has been put in quarantine for three months. In addition, the law provides for the imposing of a fine of \$200 for each animal so imported.

THE SURPLUS WHEAT CROP OF 1880—CALIFORNIA WHEAT.—The wheat growers of California are seriously embarrassed by the magnitude of their last season's crop, of which a very large proportion now remains unsold upon their hands. At present prices it cannot be shipped to the Atlantic States or to Europe, and return enough over the cost of transportation to enable the farmers to discharge the loans which they have raised on it from the banks. It is claimed by the farmers that the correct course for them to pursue, in case they cannot ship their grain overland, is to hold it until next July; the beginning of the crop year, when it is expected that it can be disposed of at a profit. The shipowners contend that they cannot afford to make any lower figures for freights. The farmers cannot sell grain at the present low prices without loss, and the banks cannot foreclose their loans without creating a panic.

TO PRESERVE MEAT FROM FLIES.—When meat has been salted and dried or smoked, it may be preserved from flies in the following manner: Wrap the meat in gunny-bagging; paper being airtight will cause the meat to mold; the bagging is sown tight about the meat; a second wrapper is then put around it, and this is covered with thick paste of lime. When this is dry the surface is covered with a thick lime-wash mixed with chrome yellow, which is poisonous to any larva of flies that may be deposited upon it. The meat should be well rubbed with ground pepper mixed with one part in ten of cayenne before putting on the first cover. Then, if the meat is hung up in a dark, dry closet, with the door well protected with strips of cloth to prevent access of meat-flies and beetles, there will be no danger of injury by insects.

Tuberculosis in Cattle.

The subject of tuberculosis is one which has for some time engaged the attention of scientific men in Europe and America. It has assumed more importance from the ascertained fact that the disease is contagious, not only among animal of the same species, but it may be communicated to other species, and even to human beings. The malady is generally protracted; the animal affected may linger for months, or even for years, but it is invariably fatal. Tuberculosis is so called from the tubercles (small tubers), morbid products within the lungs and other tissues. The tubercles are sometimes as small as millet seeds, and sometimes may be a foot in length. It has for some time been very prevalent in the dairies of New York and other towns in the United States, and the mortality among the dairy cows and other live stock has been very great. Nor is it confined to large dairies. All cattle are liable to be affected with it, and it has been demonstrated that this disease is highly contagious, and is transmitted with the greatest facility by the injection of tuberculous matters through the teat of a tuberculous cow; through the blood by inoculation, and by simple contact. The facts presented at a meeting of the French Academy of Science, as well as similar facts recently developed by experiments in Germany, demonstrate the contagious character of this disease, and it is, therefore, the duty of journalists to apprise the public of it, that it is an undoubted fact that it can be transmitted to human beings by the use of the milk of a cow affected by this disease. The fact that it is contagious renders it the more imperative that the strictest measures should be insisted on to prevent the introduction of diseased animals into Canada. There are, it is true, cases of tuberculosis in Canadian cattle, but they are comparatively rare; nor is the disease with which they are affected so dangerously contagious a character as it is when it has become hereditary, and been intensified by long contact with those diseased, as it has in other places. We should, however, guard against it as much as possible. If we have reason to believe that an animal is affected by it, we should isolate it from the rest of the herd, and it should be slaughtered to avert other loss, no matter what condition it may be in.

High bred animals are more subject to the disease than the native stock, as they are less hardy. Jerseys and Guernseys are said to be very liable to this disease, if subjected to the same neglect or rough treatment too commonly given to native stock in our northern winters. Exposure and bad treatment are often the cause of tuberculosis. The disease is sometimes met with in sheep and lambs. In fact, none of our domestic animals can be said to be wholly proof against it, and pampering makes animals more susceptible to it. The only preventive measures are due care, proper food and water, clean, dry and well ventilated stables, and keeping the cattle from undue exposure to severe weather. Cattle having any tendency to the disease should not be bred from, as there is reason to believe that it is hereditary.

Any part of an animal in which tubercle is present is not fit for food, especially if in an advanced state of the disease. The danger to be apprehended from the consumption of the flesh of tuberculous cattle may be obviated by thoroughly cooking it; but apart from the danger of its unhealthiness, it is of very inferior quality, and is unfit for food.

The milk is a more dangerous article of consumption than the flesh. There are undoubted proofs that its use as food is likely to produce phthisis. Kleber has carried out a series of exper-

iments on various animals to test the action of this milk when given as food, and succeeded in inducing tuberculosis in them. He asserts that the virus exists in the milk of tuberculous cows. Its virulence is not destroyed by ordinary cooking, and it is all the more active as the disease reaches an advanced stage. There is, therefore, the strongest reason for forbidding the use of such milk, and especially to infants. We may well attribute to the use of this milk no small proportion of the alarming number of deaths of infants in such cities as New York.

The Imperial Harvester.

This we believe to be the only really Canadian harvester made. We do not say this because there are none equal to it, but because it is a Canadian invention, and the only one that Americans are anxious to secure. One American firm has already secured the right to make them in one locality, while others are negotiating for the right. This machine was invented (or the improvements claimed for it) in this city, and was got up by one of the principals in one of the largest manufacturing establishments in this city. The improvement consists of constructing a one-wheel machine so that it can pass over uneven ground and do its work as well as any two-wheeled machine without the side draft. Its facilities for cutting higher or lower are greater than any machine we have seen. The manufacturers show a long list of commendations from leading farmers who have purchased them. They wish as much as possible to do their business independent of agents. They say:

"We know that many farmers, who have not had the opportunities of learning the good and bad qualities of machines, have been led to purchase inferior reapers, by listening wholly to some of those agents who, like vultures, hover around farmers' homes and fields, seeking whom they can find to listen to their twaddle, and make believe that theirs is the only reaper made or known to the public.

"In all competitions we reserve the right to choose the field of trial, and the judges shall be selected as follows: We will nominate two; the owner of the competing machine shall nominate two, and should these four fail to agree, they shall choose a fifth, and a majority of the whole shall decide. Experience has proven that the so-called field trials and matches, as they are termed, have not been true exponents of the merits of Reaping Machines, but on the contrary, have been but one-sided affairs, and in the majority of cases the poorest machine, in the estimation of the public, has been awarded the highest honors by the judges. Therefore, in order that the farmer, unfamiliar with the tricks of agents and those manufacturers who do and will uphold such practices, we have determined to place all trials, so far as we shall be concerned, before the farming community on a fair and impartial basis, so that any farmer can have full opportunity of judging of the qualities of the respective machines, and thereby be enabled to select that one which shall by its merits alone establish its superiority and its capacity for performing the duties that every good machine should be able to perform, to rank it among perfect farm machinery.

"To prevent such practices as these, and let the farmer know that he can procure a reliable machine from a reliable house that is not afraid to meet all competitors in fair and honest trial, we publish this announcement."

"We hereby give all competitors the opportunity of placing their machines in the field alongside the Imperial Harvester. And as an inducement to fair and impartial trials of the respective qualities of the different machines, we are prepared to forfeit a prize of \$100 to that reaping machine which will do better work and demonstrate itself superior to the Imperial Harvester."

For our part we do not pretend to say that this machine is better than all others; but the name and reputation of the firm that throws down this gauntlet stands as high as any other implement manufacturer in this city.

There is a great difference in the efficiency of workmanship and durability of machinery. Some agents are so plausible that they can sell the worst and make the ignorant farmer (those that do not read reliable agricultural publications) believe he is getting a bargain. The expenses of repairs and short duration of some machines make some kinds of machinery dear at a gift. There are plenty of Harvesters that are one, two and three years old that are painted up so well that the farmer believes he is getting a new machine, whereas he is only getting a rejected article.

This we would advise you to do if you are intending to purchase a harvester this season: Write to Crawford & Co., Globe Works, London, Ontario, and they will send you a handsome lithograph of their Harvester and a fine farm scene, which is far more valuable for an ornament to your house than all those cheap daubs of colored paper, called handsome chromos by the agents of the cheap literature that we now see disfiguring many farmers' houses. You will also receive an illustrated catalogue, giving you full particulars. This machine is so constructed that shafts can be attached to it if required, so that small farmers, as well as large, can use it. To procure the large, handsome lithograph you must say that you saw this account in the ADVOCATE, and are a subscriber to the paper, as a cheaper one has been and will be sent to applicants received from other papers. If you intend buying this year apply as we have directed you, and compare the Imperial with any other machine.

Experiments in Fertilizing Orchards.

Prof. Beal has been experimenting with an orchard. The land on which this orchard was situated was slightly rolling, not a strong land, a considerable portion was of a black loamy nature suitable for grass or corn. The experiments have been carried on since 1873 up to the present previously the orchard was not well cared for.

Around some trees small circles were kept cultivated; but these trees do no better than those which grow in sod. A circle of grass extending nearly out to the ends of the overshadowing lines is of little or no damage to the tree after it has grown 15 or more years, and has become well established. Trees of this age left in grass without manure, in our orchards, grow more slowly, produce less fruit of a smaller size and poorer quality, than trees which have been well cultivated; the fruit is generally in our experiments of a brighter color when grown on trees left in grass. When spread broadcast about a tree, barnyard manure produces a good effect about two years sooner than when the manure is placed close to the tree. Some trees were kept heavily mulched, to others ashes were applied at the rate of one wagon load of leached, or two or three bushels of unleached per tree, others were given a wagon load of barnyard manure; these applications were made four years ago, and perhaps it is too soon to arrive at conclusions, but as yet the trees appear about the same, no difference being visible in favor of either of the above modes of manuring. Where clear cultivation has been practiced without fertilizers or mulch, the fruit seemed to be just as abundant and of as good quality as in the three last cases enumerated. Thorough tilling of the land has been one of the best experiments, and has apparently produced the best results. I have experimented in thinning apples while they are small, and find it very profitable.

A writer in an exchange says: Several apple trees set on the bank of a ditch, which takes the water from the sink spout and back buildings, are the only ones in the vicinity which bear a full crop every year. They began bearing ten years ago and have been loaded with the largest and finest fruit every year since. He also reports pear trees under similar circumstances giving like results.

Agriculture.

Agriculture in the Ontario Legislature.

THE FIRST LEGISLATIVE TAP AT A ROTTEN INSTITUTION.

Mr. Graham moved that after the expiration of the current year it will not be in the interest of the public to continue the annual grant of \$10,000 to the Agricultural Association of Ontario. He argued that as far as experience had gone, the Government grant had been a useless expenditure. He meant, in short, that the Provincial fair should after this year cease to exist. This proposition, coming from a practical farmer, might seem somewhat strange, as the grant in question was at least ostensibly given for the purpose of promoting the interests of agriculture. If the grant of \$10,000 per annum accomplished its purpose, he would not for one moment oppose the grant; on the contrary, he would support it. But the vote was not accomplishing the purpose for which it was designed. On the contrary, he thought it was exercising a retarding influence, as it tended to prevent a free competition in agricultural exhibits. He thought that there was too much of a ring influence in the conduct of the Provincial exhibition, if not as large, at least as corrupt, as the Tammany ring. One very significant fact was that the small breeders did not come to exhibit at the Provincial fairs, and this was because they had come to learn that they had to be within a charmed circle if they desired to obtain a prize on thoroughbred stock. Very frequently the mere names of exhibitors was deemed sufficient to carry away prizes. Abuses existed, and there was no doubt that the time had arrived when the expenditure of public funds should be stopped, when it was clear they were so expended for wrong purposes. The Provincial exhibition had outlived its usefulness. The honorable member then contrasted the financial statements of the Provincial fair in 1879 with that of the Central fair at Hamilton in 1879, the Industrial fair at Toronto in 1880, and the Londod fair in 1880, and showed that these fairs had done much better and given more prizes than the Provincial fair without Government aid. The cause was that the Provincial funds were swallowed up by the sinister influences of which he had spoken.

Mr. Dryden said that the usefulness of the grant was gone, and all things being considered, he thought the vote might be safely discontinued.

The motion was supported by Messrs. Ross, Livingston, Bishop, and several others, all of whom spoke in its favor.

Mr. Wood said he had no doubt that the gentlemen who had spoken had carefully considered their speeches, but he thought that perhaps those speeches were not fairly considered. The Provincial show was essentially a farmers' show, and as such it had shown a steady increase in the prosperity of, and had done great service to, the agricultural interests of the Province. There were of course many changes in the circumstances which might necessitate a reconstruction of the present position of the Government towards the agricultural and arts societies. During the recess the Government would give the whole matter its consideration, and meantime he trusted the member for Lambton would withdraw his motion.

Mr. Ballantyne defended the Provincial exhibitions, and said that there had been no special abuse at the shows, but he thought that a remodeling of the whole system of the Government aid to the societies should be undertaken. He said that the smaller societies were productive of much evil.

Mr. Boulton said he thought the Government grant might be divided between two shows, east and west.

Mr. Hay said he thought that the vote might be so distributed that it would promote a Provincial show at longer periods than at present, but he thought the present tendency was in the direction of consolidation.

Mr. Debouche advocated the division of the grant into four sections.

After further discussion Mr. Graham was induced to withdraw his motion.

We have been creditably informed, had it gone to a vote of the House, it would have passed.

Farmers, what is your opinion of Mr. Wood's judgment (he is the Commiss'r of Agriculture) when he states in 1881 that the Provincial Exhibition is

a farmers' show and has shown a steady increase? We might ask in what has the increase consisted. Has it been in fair, straightforward dealing with the practical and deserving farmer, or in increasing fraud, deception and injustice to farmers?

Mr. Ballantyne, M. P. P., and member of the Board of Agriculture and Arts, said that the smaller societies are productive of evil. We do not think the evil at all in proportion to the evil done by this shamefully managed institution, the Provincial Exhibition; of two evils choose the least, namely, the Township Exhibitions; they do infinitely more good than the Provincial, in proportion to the money expended.

Potash and Ashes in Agriculture.

BY PROFESSOR G. C. CALDWELL.

Potash is the most abundant constituent of the ashes of all agricultural plants, and the question of its necessity in manures and of buying potash fertilizers is, therefore, one of importance. The native stock of potash in the soil is usually large, as is evident when the number of pounds per acre is considered, although the percentage of about 0.03, as found in one series of analyses of eighteen soils, indicates the presence of 900 pounds of potash in the soil of an acre within a depth of twelve inches, and therefore within easy reach of the plant. An average of about 0.04 per cent, found in another series of analyses of twenty-five soils, indicates 1,200 pounds to the acre. One soil of this series, from America, said to have produced wheat for twenty-six years without manuring, contained 0.23 per cent of potash, indicating nearly 7,000 pounds to the acre.

Ordinary stock or dairy farming makes but a slight draft on this native supply of potash. For every thousand pounds of live weight of young cattle in the yard only about 2 pounds of potash are withdrawn from the fodder; and for a thousand pounds of fattening cattle only 1.5 pounds. Practically, therefore, nearly all the potash of the fodder is recovered in the excrements, and, with any decent care of the manure, goes back again to the soil whence it came. This is not because there is but little potash in the fodder, since the year's supply for a thousand pounds live weight of fattening cattle, well fed, would contain about 240 pounds of potash; there would be about 90 pounds in the fodder of milch cows, and 180 pounds in the fodder of young, growing animals. Some of the crops, or parts of crops, contain little potash, others much. In 25 bushels of wheat there are about 8 pounds of potash, and 12 pounds in 50 bushels of corn. In the potato crop the exportation of potash from the farm would begin to amount to something worthy of consideration, for it would be about 50 pounds in every 150 bushels sold; and the sale of the hay produced on the farm might also lead in time to a too heavy draft on the bank; 3,000 pounds of timothy contain about 64 pounds of potash.

Comparatively small portions of the farm being usually devoted to the production of potatoes and hay for sale, there is, where only fattened animals, milk, butter, cheese and grain are sold, an insignificant drain on the soil with respect to its potash; and there would appear to be but little profit in buying potash manures. There is, moreover, almost no loss of potash from the soil by the leaching effect of the water that passes through and escapes by the drains or the porous subsoil; but mere traces of this substance are to be found in drainage waters. Therefore, whatever potash there is in the soil remains there till taken up by the crops; and whatever is put on the soil in the stable manure made at home, or in purchased manures, however soluble it may be in water and exposed to leaching, soon passes into other and difficult soluble forms of combination; the soil locks up securely all the potash that is intrusted to it, and yet not so securely that plants cannot get it.

Common ashes contain about 8.5 per cent of potash, and leached ashes only about 1 per cent. If the usefulness of the former as an application to the soil consisted mostly in the potash, the leaching of the soap-boiler should cause a very large reduction in their agricultural value. But we find the statement to be very common on the part of those who profess to have had experience in the

use of both unleached and leached ashes, that the leached are half as valuable as the unleached, and others go so far as to say that they are equal in value. The price of leached ashes is by no means so much less than that of the unleached as the loss of the potash should make it, if it is the potash that produces any large share of the effect of the latter; where from 20 to 25 cents per bushel is paid for unleached ashes containing but 2 or 3 per cent of water, 12 to 20 cents will be paid for leached ashes with sometimes almost 30 per cent of water, to be applied at the rate of 100 or 150 bushels to the acre; even as high as 25 cents has at some places been willingly paid. These leached ashes may contain from 1 to 2 per cent of phosphoric acid, of course, as insoluble phosphate, from 2 to 4 per cent of magnesia and about 30 per cent of lime, mostly the carbonate as we would have it in ground limestone.

We can, perhaps, find in the composition of leached ashes, as a whole, a satisfactory reason for the comparatively high value that is sometimes attributed to them. The magnesia may not be without effect; the carbonate of lime may act the same useful part that it does in the genuine marls so much used in Europe; the mechanical effect of an application of 100 bushels—or 5,000 to 6,000 pounds—of such fine material to the soil may, in some cases, be important; and, finally, the quantities of phosphoric acid and potash applied in such a dressing are not small, for there might be from 50 to 75 pounds of each. Many of the usual dressings of superphosphate would not contain half as much phosphoric acid as this, including both the soluble and the insoluble phosphate, nor would some common dressings of bone meal contain as much.—N. Y. Tribune.

Sufficient Farm Help.

If we start out in the spring to till a farm of a certain number of acres without sufficient help, then a part of the necessary work must be left undone or the work only partially accomplished. Then is when the farmer has too much to do and gets behind with his work; neglect disturbs method and all things are soon out of balance. Many farmers say they cannot afford to hire much help. It is as necessary to have sufficient help to carry on a farm successfully as it is to have any help. If help cannot be had, then let some farmer have a part of the farm to work, for the extra amount of land which cannot be properly tilled is so much land lying idle. Thus writes a correspondent of the Husbandman. He goes on to state his own method:—"I will give the method which I have followed for years, and I cannot say that I have had too much to do, and at no time have been behind with my work. The first thing I do is to provide the best tools for all kinds of work and sufficient team power to use them. I employ the best help I can get, as I have learned that skilled labor is the cheapest. Hiring cheap help to save a few dollars does not pay; loss in damage to teams and tools more than offsetting any saving so made. It takes but a few hours for an inexperienced or a careless hand to do much damage. It is my method to keep as much help as the farm requires. I am well aware that many farmers will say, as has been said before, that they cannot afford to hire so much; but all I have to say to such is, start next spring with more help and till your land as it should be tilled, and put the farm in proper shape, and when the year comes round figure up the difference, and see if money has been lost."

Renovating Lands.

The future indicates stock raising and the production of meat and milk as likely to be the most profitable branch of the farmer's business; hence instead of converting the poor, worn-out tillage land to grass, a more prudent and far more profitable course will be, first to drain where necessary, and then use them for the growth of forage crops. Here we have a great variety of plants suited to every variety of soil and climate, and a well-directed forethought will ensure a succession of crops throughout the greater part of the summer. Cut and fed on the land to stock, to which a daily allowance of linseed cake is given, a certain quantity of wool and mutton or beef is produced per acre, while the land is steadily improving in richness. It is sometimes held desirable to plow in a crop of rape, buckwheat or clover, in order to enrich the soil for the support of future crops. We know of no better or cheaper means of restoring the lost fertility of exhausted soils than the repetition of forage crops grown and fed on the land.

Silos.

As there has been a good deal said about ensilage, we give an illustration of the buildings of the originator of the system. The illustration has been obtained from the New York Plow Co. They publish a pamphlet giving full particulars about it. We do not recommend our readers to adopt this plan, but rather advise you to wait and see the system properly introduced by those who have money and time to expend on it; as no doubt there will be many failures before it becomes profitable for the plain farmer to adopt the plan. We have before now directed the attention of our readers to this system. By it maize and other crops are preserved fresh for feeding from the time they are cut green till the succeeding crop is fit for cutting. The maize is cut in short lengths and pressed firmly in a trench prepared for it; it is then covered by planks, which are pressed down by a heavy weight of stones or earth. It is

facilitating root action. When there is not a clay subsoil within reach of the plough, the use of lime in conjunction with vegetable matter turned under is advised as one of the most effectual and economical means for the amelioration of the land.

The successful management and cultivation of clay or stiff lands are much more laborious than the lighter soils. Clay soils under proper treatment, however, endure long and yield a great variety of crops. Clay lands are deficient in vegetable matter and are therefore greatly benefited by an application of the same. Lime is also beneficial to such lands, assisting to remedy their stiffness and tenacity. Any substances which serve as divisors, preventing the adhesion of the particles of earth both in times of drought and excessive wet, are of great service.

Good drainage is especially necessary for clay soils. Without drainage seasonable work can seldom be done in the spring. Every farmer knows how troublesome clay land becomes if run together and packed after having been ploughed. Much needless work is caused by ploughing such lands too early in the spring. Fall ploughing is a great assistance; it adds humus through whatever

off must be returned to the land to secure its enduring fertility. It has been practically demonstrated over and over again that the roots of all plants, and especially the legumes, have a power of acting as chemical agents upon the mineral elements of the soil in a manner which renders them available as plant-food. This in part explains the desirable effects of the cultivation of peas, clover and the like.

While the general principles here laid down and already familiar to many farmers are the same everywhere, their application to practice must of necessity vary with the differing circumstances surrounding individual farmers. Certain practices which give admirable results at the North may fail to be of any avail at the South, and vice versa. Many of these differences farmers must learn from experience, though much knowledge may be gained by observation. The interchange of experiences from all sections of country through journals devoted to the farmers' interests, and farmers' clubs, cannot be too highly prized or encouraged. Every farmer who takes the trouble to promulgate facts coming into his own line and of general interest, is soon rewarded for that trouble by some



THE SILOS OF M. AUGUSTE GOFFART, BURTIN, FRANCE, THE INVENTOR OF THE SYSTEM OF ENSILAGE.

preserved in the trench by this means from air, and fermentation is prevented. When taken out as wanted for feeding, it is found quite fresh, and is relished by all farm stock.

Treatment of Different Soils.

Soils, while naturally depending for their mineral elements upon the source from which they are themselves derived, at the same time often rely more upon artificial treatment than the original source for their fertility. There are, indeed, few lands of such character as to be permanently independent of the aid of applied fertilizers; therefore the necessity for knowledge of the chemical constituents of a soil in order to know what crops it will best grow and what elements of plant-food it requires.

Soils composed of coarse land, while they may be rich in mineral elements, are, in the absence of judicious treatment, a continual source of disappointment to the cultivator. These soils, however, with proper management, have their mechanical defects corrected and their value many times enhanced. Fall ploughing when there is a clay sub-soil within reach is very beneficial, because it brings up the clay to mingle with the sand surface by the action of frosts and rains. A green crop or two turned under further assists in stiffening the texture of the land, improving its capillary action and

growths may be on the surface, and the alternate freezes and thaws of winter break up the inert clods and grind down the soil into a more soluble mass. Cold and unproductive soils which have stagnant water sufficiently near the surface to be reached by the roots of plants require to be underdrained.

Alluvial soils may be said to have no distinctive character, being composed of successive deposits, continued through a long period. They partake somewhat of the soil of the country from which running waters have washed and deposited them. Alluvial lands, of course, are rich in humus and do not need the assistance of green crops turned under or the application in any form of vegetable matter. They are generally deficient in the mineral plant-food. The same may be said of soils known as vegetable moulds and containing a large per cent. of vegetable matter.

Loams are soils in which clay and sand unite, sandy loams being those in which the proportions of sand and clay are reversed. These must be treated according as the sand or clay predominates.

If all the crops annually produced upon one's land were returned to it the soil would annually improve in fertility. With this fact in view it is easy to understand that as a part, at least, of each crop is annually removed plant-food equivalent to that contained in the portion of the crops carried

equally valuable fact, otherwise unknown to him from another farmer whose opinions were called out, maybe, by his own communication.

WHAT ARE MALT SPROUTS.—When barley is to be made into malt it is soaked in water for two or three days until it has absorbed half its weight. It is then spread on a malting floor in a heap a foot thick at a temperature of 60°. The barley begins to heat and sprout, and the plumule, or first shoot, and the roots begin to grow. To prevent overheating the grain is turned with shovels and spread more thinly. When the roots and sprouts have grown to a certain length, which indicates that the starch of the grain has been changed to sugar, the growth is stopped by kiln-drying the grain. It is then sifted, and the roots and sprouts become broken off and fall through the screens with the dust. It is these screenings from the malt which are the malt sprouts so often spoken of as a valuable feeding substance. They contain nearly all the nitrogen of grain, having about 4½ per cent. They are rich in sugar and fat. They contain 4½ per cent. of nitrogen, 2 per cent. of phosphoric acid, 2½ per cent. of fat, and only 8 per cent. of moisture. They contain 44½ per cent. of carbohydrates, most of which is digestible.

Poultry.

Plymouth Rocks.

BY R. A. BROWN, CHERRY GROVE, ONT.

This cut is a fair representation of the Plymouth Rocks of the present day, which is somewhat different from the original type. They are what is termed a made-up breed, having their origin in the New England States, and are purely an American fowl.

There are so many aspirants for the honor that it is yet a mooted question who was the real originator. They have been bred in Canada for twenty years, but, strange to say, they do not breed as true to feather now as when first introduced. It seems as if there was a good deal of tampering going on with this class of fowls. Our poultry journals are filled with complaints regarding color, style, and not transferring their quality to their progeny.

We are sure that there are other make-ups "different from the one we are about to describe," from their habit of sending out chicks of every shade and color, with black, white, yellow and even green legs, and some having five toes.

We are inclined to believe that the true Plymouth Rocks originated from mating the Dominique cock with the Black Java hen, which American fanciers have perfected to the present type. The older type had a larger comb, longer neck, was straight in the back, with full, flowing tail, and long cycle feathers projecting six or eight inches from the rest of the tail. Our more modern bird is, in general color, grey, or what is sometimes termed hawk-colored, each feather being distinctly penciled across with dark bars, the inside feather being a dark blue, while the outside edges and tip ends are darker. The color of the whole bird is nearly alike, and is a deep, dark colored Dominique; beak, bright yellow, short, stout at base, and gently curved at point. Eyes blue, large and bright; comb medium size, bright red, single and serrated. Four spikes are best, though five are very common. Wattles and ear lobes bright red, and of medium size. Neck, medium length, with an abundant hackle. Legs strong, pure yellow and free from feathering. Tail medium length, but full and very tidy. Weight of cock, average eight pounds; is docile in temper. The hen's average weight is six pounds, very docile, good layer in winter, rich flavored eggs, which are of a pale buff color, of eight to the pound. She is a good incubator, and can not be beat as a mother. The chickens are hardy, mature early, and attain a good size in autumn.

Flesh rich, juicy and tender, far superior to any of the Asiatics, and some assert is equal to the Dorking.

Is well adapted for general use amongst farmers, as only one breed need be kept by the average farmer,

Mating Fowls for Breeding.

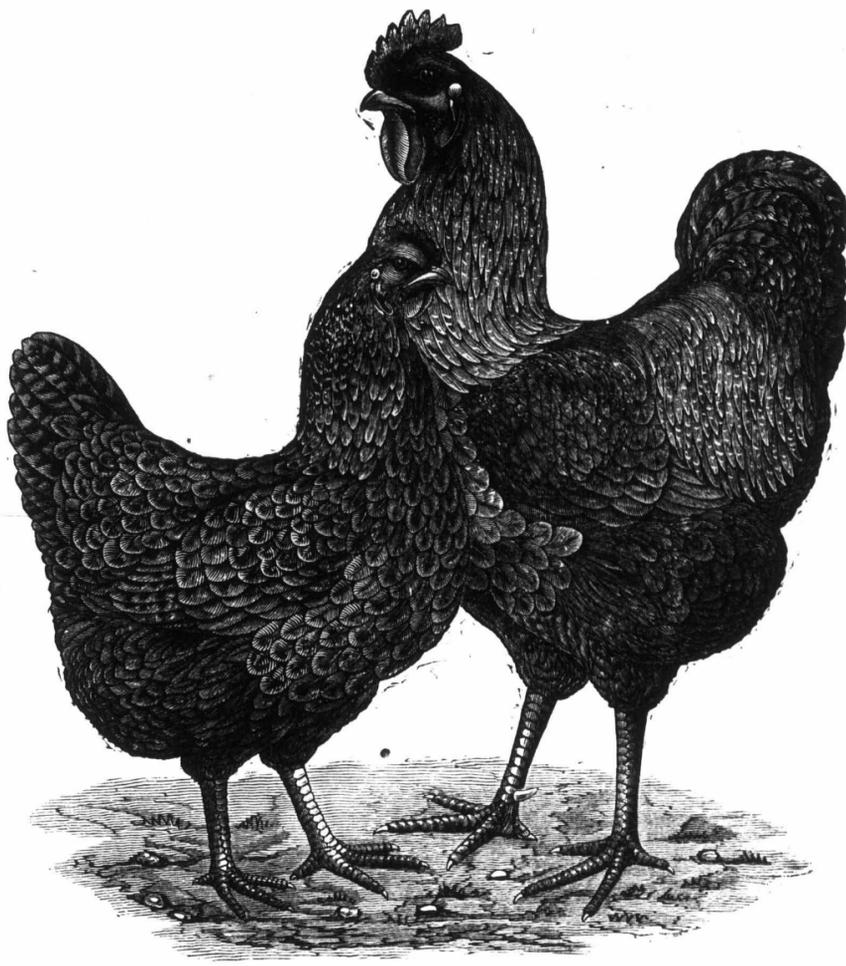
The number of hens to be mated with a cock differ according to size and range. Large breeds will not mate with very many to be profitable. If only one breed is kept, and they have the whole farm to range, one-quarter the number of hens may be added to what would be requisite in the breeder's enclosure. Small breeds are generally very agile, and require more females than the large, clumsy ones. There is more danger in damaging the fertility of eggs with too few females among the small breeds than too many. I would sooner mate 1 cock with 25 hens than less among Leghorns and Games; the hatching percentage would be double. If a farmer has 1 or 2 hens only of those that are pure bred, from which he wished to realize the best results, the best way would be to put in two or more common hens to avoid over attention. One can watch his good ones for a while, when he

hens, for the reason that a young cock is more vigorous and the old hen lays the largest eggs; therefore, the chicks will be larger and stronger, and, we think, preferable. The male has the most influence on the fancy points, while the hen has most in the form and size. Birds are like horses, but few are perfect; and when a specimen is not all that is desired, the way is to breed it out. It can be done, though not without thought and counsel; but remember the fact that the male bears the influence of color, the size and shape of comb, wattles, ear-lobes and color of legs, while the female carries, or transcends, the size, shape, length of legs, carriage and temper. With this knowledge one can do a great deal to bring his poultry up to a high standard of excellence.

NUMBER OF EGGS PER HEN.

Most breeders put too many eggs under each hen to sit upon in the earlier part of the season, when the weather is yet cold. One will have better results with half the number of eggs for each hen.

Do not be afraid of losing time by such proceedings, for "Haste makes waste," and I might say disappointment to. I have known parties to buy a dozen eggs at a fancy price and put them all under one hen, and that a small one. The results were two or three chicks and great disappointment. Large hens can cover more eggs than small ones, but are not as good incubators, being too heavy and clumsy, and are apt to break more than they hatch. We prefer the Dominique, as they are good, close setters, gentle while on the nest, and good, attentive mothers when rearing the brood. We have tried all kinds for this purpose, and give those the highest marks for good qualities. Some hens are so timid and wild that if you go near the nest while incubating they will flutter around and smash half the eggs, as they think to save them; others are so cross that if a chick from another hen comes near them when rearing their brood, they will peck and kill it. We have lost more chicks and ducklings from this cause than all the rest put together. For a large hen in cold weather, such as the Cochin or Brahma, nine eggs are enough; for a small hen seven are plenty. In warm weather you may add



PLYMOUTH ROCKS.

[1st Prize birds at Guelph International Poultry Show, at Brantford Show, at the last Ontario Provincial; also at the Western Show—all in 1880. The property of G. H. Pugsley, Brantford.]

will soon distinguish the eggs he wishes to save from the others. It is not an easy matter to lay down a rule how many to mate, for when old cocks are used they are not so vigorous as younger ones. The following is about the amount that breeders have determined on: If enclosed, choose the first if not the latter—Langshans, Brahmans, Cochins, 5 to 8; Houdans, Dorkins, Creve Coeurs, Plymouth Rocks, Javas, 6 to 10; Spanish, Polish White, Leghorns, 8 to 12; Hamburgs, B. Leghorns, Games, 10 to 16; large Turkeys, 6 to 8; small Turkeys, 8 to 12; large Geese, 2; small, 3; Ducks, 4 to 8; Guineas, 8 to 10.

The male's influence will be found good for from two to three weeks with such ratio as here described. We prefer to mate our stock six weeks before saving eggs for the purpose of hatching. A young cock is our preference to mate with old

two more for each hen. Twenty-one days is the length of time required for incubation, though in very warm weather some may come out in eighteen days; duck eggs 28, excepts Mascovs, which take from 34 to 36 days to incubate. Duck eggs may be incubated with success under hens, but one must be on hand when the time for incubation expires. If the eggs are not all pecked you must crack the shell on the large end, take out a piece as large as a five cent coin, then put it under the hen for a few hours, when you must take away the little strangers as soon as they appear. Never give them to hens to rear if there is any chicks within sight or sound. Some hens will leave the ducks in order to adopt the chicks.

Goose eggs take about thirty days to incubate.

Garden and Orchard.

The Berberry as a Hedge Plant.

BY HORTUS.

(Continued from last month.)

Being possessed of many fibrous roots it grows at once, being none the worse for transplanting. When planting in a straight row or by a fence the plants should stand a foot apart; planting them any closer will only have the effect of a weaker hedge, nothing being gained by it, as the farther apart they are the more robust the hedge will grow and the sooner will it come into usefulness; the plants will soon occupy all the space and thrive accordingly. Any clean cultivated piece of soil will do to plant in a fair tith. A furrow should be thrown out by the plow of sufficient straightness; if any unevenness appears in the line this can be easily straightened by the spade. The depth of furrow should be sufficient to receive the roots without crowding down, and the collar of the plant laid neatly against the straight bank of trench. The planter having furnished himself with a convenient sized bundle, and standing to the left of the furrow, place quickly and deftly with his right hand a plant against the bank as described; he can lay them as fast as a person following with a spade can clap a little soil against the roots, and all should be done as fast as a slow walk. Following them should more men come, filling in and trampling firmly till all is evened over. Thus the work can be done expeditiously and with no trouble, and this is all the mystery or science in planting anything of this description there is. And here we cannot resist the desire to say a few words about a very common and widespread belief respecting a charm or luck in planting trees. We say there is no charm or luck in planting trees. Very often we hear the remark that such a one is very lucky, never lost a tree and so on. This is all nonsense of the purest kind. If the right conditions are observed, such as trees not to have been too long exposed, or the roots get too dry, or plant them as they would be, the same depth, &c., as if they had not been disturbed, everyone may possess this luck or charm and enjoy the pleasure of seeing grow that which you labored over.

One thing always observe, never place any manure or strong soil near the roots of trees or through the soil when filling in, and be careful not to plant too deep, and these two rules, if observed, will be almost all you need bear in mind.

But there is no danger in planting Berberry; anyone can plant them without any fear of luck failing him, or whether the plant stands in the same relative position to the north or the south as it did before it came into his possession.

In regard to the planting alternately on each side of the skeleton fence we spoke about, this plan of hedge making we consider a capital one. It will have the effect of giving a wider base to the hedge, and of course a greater strength and a longer period of usefulness, and about the period of usefulness we will have another word to say by and by. We forgot to mention when planting first the plants should be all cut back to a uniform height of say a foot. This is all the trimming for this season. The following spring cut back to an evenness any stray growths; but encourage all shoots from the base, bearing in mind that to have a good hedge, as well as to have a strong house, you must lay a sure, strong, broad foundation. Give a little cutting annually, just once in the fall or early in spring before the new growth commences.

When a hedge has been allowed to run up without cutting back and gets thin at the bottom, it can be entirely renewed by cutting back to the ground, and with care afterwards will make a

strong hedge. The Berberry possesses great vitality and bears cutting back with impunity. This faculty makes it desirable to plant for ornamental purposes; to divide lawns or flower gardens from the vegetable gardens, or fencing off lanes and drives, it cannot be excelled. The purple Berberry, a variety having purple leaves, in all other respects resembling the common kind, is extensively planted for this purpose. As a single specimen amongst other shrubs its dark foliage is very striking and distinct.

The Berberry bears great quantities of seeds, so that by planting a half dozen or more shrubs, a person will soon be able to raise thousands of hedge plants himself. The seeds should be gathered when fully ripe, the pulp and skins bruised off and washed away; mix the seeds with sand and sow at once; if not convenient keep till spring, sowing them in light soil; give the same cultivation as would be necessary to grow carrots. The leaves and bark of the Berberry are so acid that cattle will not molest it.

Forcing Seakale and Rhubarb.

The season is already well advanced for those who wish to produce early crops of seakale and rhubarb. The necessary pots or baskets having been procured, fermenting materials, whether they consist of fallen tree leaves or stable litter, &c., in bulk sufficient to create a good warmth, will be necessary to force them into growth. Those, then, who possess such should proceed as follows:

Having the ground neatly cleared of litter and raked over, place over each of the crowns small heaps of cinder ashes, sufficient to just cover over the points of all the "crowns," or shoots. Over these, again, place pots having upon them lids or slates, in such manner that the warmth, while it may pass freely from the fermenting materials through the sides of the pots, and so warm and cause the stools or underground roots to grow, will obviate steam from passing through nevertheless. Because steam in bulk, if it finds its way to the crown, especially at such times as it commences to grow or form its tender, blanched leaves, depositing as it does an excess of moisture, invariably causes them to rot off; and hence not alone is the anticipated current crop lost and destroyed, but so, also in the majority of such cases, the whole of the roots also.

It is to obviate such a state of things as this that cinder ashes are placed as suggested. The fermenting materials should be placed somewhat thickly, according to their freshness or otherwise. If fresh from stables, or leaves not previously fermented, then a thickness of about three feet will be required to start with. They should be trodden down tolerably firm, as they heat better, and, if dry, a little water added will cause additional fermentation.

Test sticks must be put in, or, what is better, a thermometer, and by this means it will be seen that the heat reaches and maintains an average of from 80° to 85° at starting, but not more. Oftentimes a greater heat is wanted to get them to make their first start than is needed subsequently.

It will be advisable, after the first dozen days or so, to examine the crowns, and when they are seen to commence growing reduce the heat to an average of from 70° to 75°. The heat may be readily increased or reduced by adding fresh materials in the former case, or by treading the existing materials down more firmly, or reducing their bulk in the latter. Do not, however, in any wise work among or interfere with the fermenting materials during snowy weather, or while snow is among them.

Always, where practicable, remove snow from them when it exists, however, as it quickly destroys the heat. Do not permit either light or air to enter the pots wherein are the growing crowns, or it will cause the growth made to become green, and therefore useless for the table.

Where plenty of plants exist, it is customary to have two batches under heat, so that they may be worked for successive supplies.

Don't fail to mulch the strawberry beds before spring's sudden thawing and freezing come on to heave them out. The mulch can be put on the snow.

Grape-Rot and Mildew.

Grape-rot and mildew are two of the worst enemies with which the grape grower has to contend; and yet both of these are more or less under his control. They are caused by the growth of very minute plants, called fungus. In infested districts the seeds of the fungus are everywhere floating in the air. Now, when every part of the plant is in a healthy, growing condition it has the power of resisting the germination of these seeds; but when any part of it becomes debilitated, the power of resistance in this particular part of the plant is lost. As soon as the fungus seeds germinate they have the tendency to further the destruction of that part of the plant which they infest, so that when they once gain a foothold the plant has not the power to dislodge them. Let us briefly notice the causes which tend to produce this debility in the plant, and then see if there is no way of counteracting them. In the first place it has been ascertained that when the temperature of any part of the plant sinks below 50° Fah., plant-growth in this part of it ceases, thus allowing the fungus seeds to effect a lodgment and germinate. The fungus will grow under a much lower temperature than this; in fact, it seems to thrive better under a low than high temperature. One of the principle causes of this sinking of the temperature is the evaporation of the rain-water and dew which fall upon the plant. It is well-known that when water falls upon any object it withdraws from the object a sufficient amount of heat to evaporate it. Now, when the water is allowed to evaporate slowly the temperature will not sink so rapidly as when the evaporation progresses more rapidly, as when a current of dry air passes over it. Hence, the vineyard should be sheltered from the wind as much as possible, and when it is not so sheltered, a hedge of evergreens should be planted along the side or sides of it from which the wind usually blows; and if the vineyard is very extensive additional hedges should be planted through it parallel with the first one. When the vines are trained upon wooden trellises wide boards should be nailed flat wise on top of the trellises; this in a measure will prevent the rain and dew from falling upon the vines and thus secure a greater uniformity of temperature.

The lowering of the temperature is more often the cause of mildew than of the rot; the latter is usually caused by a lack of the necessary mineral elements in the soil. While the plant is perfecting its seed it requires a considerable amount of these elements; but when it is deprived of these, plant-growth in the fruit ceases, thus permitting the fungus seeds to germinate without the power of resisting them. As a rule, when these elements are lacking in the soil they are contained in the subsoil, and are brought within reach of the plant by the water which rises from the subsoil into the soil. But it frequently happens that after these elements have been brought within the reach of the plant that a heavy rain will again wash them back into the subsoil, where for the time being they are out of reach of the plant. To prevent this, surface draining should be resorted to. A drain of sufficient size should be dug between each of the rows, and the earth from each of these drains should be thrown up to the roots of the vines, so that the surface of the ground will slope from the vines to the drains. These drains should be cut crosswise with the slope of the land; that is, when the land slopes to the south the drain should be cut east and west. It is not necessary to run the water out of the vineyard, but only to collect it in the drains from whence it can enter the subsoil without doing any injury to the plants. On this account the drains may be filled up at intervals of every rod or two.

The element usually lacking in the soil is the phosphate of lime; hence, in using fertilizers, those only should be used which contain this element in large quantities.

Plants, as well as animals, must have pure air. In house culture of plants, the windows must be raised every day in Winter, even when the temperature is almost freezing, or some other mode of ventilation must be devised, in all cases avoiding a direct draft of cold air upon the plant.

If plants are properly watered and enriched so as to be healthy and strong, they will not be infested to any great extent with vermin. The best way to get rid of insect pest is to brush them off into a dish of water with a soft, dry brush; a small paint brush is the best for this purpose. The above remedy is the best and the least trouble, and, if taken in season, effectual.

Cultivating Peach Orchards.

The peach tree is more sensitive to neglect and retarded in growth in grass, as well as stimulated by good cultivation, than any other of our common fruit trees. We have never seen a successful orchard in grass, unless subjected to constant and heavy manuring. We observe a recent statement by C. Engle, of Paw Paw, Michigan, that he has an orchard eighteen years old bearing abundant crops of excellent peaches through the influence of cultivation. He plows it early every spring to a depth of five and six inches. In two weeks he passes a heavy harrow both ways. Afterwards a two-horse cultivator, set to run four inches deep, is passed over the ground from three to five times. This ends the season's cultivation. Mr. E. thinks there are more peaches of the best quality borne on these trees than on any equal number elsewhere in the State. In allusion to the recommended practice of sowing buckwheat in peach orchards, instead of keeping it clean and mellow, Mr. E. says he would as soon think of sowing buckwheat among his corn to insure a heavier crop. The truth is, while every farmer knows that clean culture is absolutely essential to success in his common farm crops, many fail to apply the same knowledge to their more expensive orchard.

[Our long experience satisfies us that peaches must not only be grown on ground that is kept worked (but not too late in the season), but that the tops must be headed in—that is, the new growth cut half off, in August.—[Fruit Recorder.]

Girdling Apple Trees.

A correspondent of the Prairie Farmer, an extensive nurseryman, living at Springfield, Ill., furnishes that paper a brief account of his series of experiments in girdling apple trees to induce bearing. He had an excellent opportunity for performing these experiments, having about 14,000 trees in his orchards, most of which are set thirty feet apart, the trees fifteen feet in the row, every alternate one to be removed as they become older and require more space. On these alternate ones the experiments were made, and standing thus side by side with the ungirdled trees, the results could be easily and accurately compared. The conclusion reached from these trials, now of several years' standing, is that the very thrifty trees, growing in the rich soils of the west, are made to bear sooner and more abundantly by girdling or cutting out a ring of bark from a fourth to half an inch wide, and that the tree is not at all lessened in longevity. The time for performing the operation must vary with the age and condition of the trees. On those over fifteen years of age the work should be performed in April; on younger trees of more recovering power, it may be even as late as June. The experiments have been so successful that large additions are made to the orchards with a view of bringing them into early bearing by this process.

Plowing Orchards.

We have repeatedly urged the importance of observing the distinction between plowing orchards in a dormant and in a growing state. Cutting a small portion of the roots while the trees are dormant, can do no harm, and would have far less influence than cutting the whole, as in root-pruning. Quite a different result would take place if the roots are cut after growing has commenced. A distinct proof of the correctness of this position was stated by Mr. Anderson before the Montgomery County (O.) Horticultural Society. He has two peach orchards, one of which was plowed in autumn, and the other the following May, after growth had commenced. The leaves on the spring-plowed trees turned yellow, and the trees suffered from the first dry weather. Those plowed in autumn made a handsome growth, with no turning yellow and no suffering from drouth. Mr. Longstreth said that he had plowed quite early in spring, before the buds had expanded, with good results. Another portion of his orchard, plowed considerably later, had been seriously injured by it. These statements accord with the well-known fact that a tree may be safely dug up and transplanted while dormant, but would suffer or die if removed later, when in leaf. The importance will be at once suggested of always performing the deepest plowing of an orchard either in autumn or early spring, and running shallower after the growth of the trees has commenced.—[Country Gentleman.]

Weeping Trees.

The association of the common Weeping Willow with water leads people to think that it will not succeed elsewhere; but there are few spots, even away from water, in which it will not thrive if the soil be deep. I have seen really grand specimens of it growing on lawns. Scarcely less beautiful is the Weeping Birch; for although its spray is not so long as that of the willow, yet, owing to the tree being more lofty, it is nearly equally effective. Not so graceful, perhaps, as either of these, but a better arbor tree, is the weeping ash. Owing to its extreme pendulous habit, it is necessary that it should be worked on very tall stocks, as if height is not secured at first it can not be obtained afterwards. The weeping ash should be planted in quiet, secluded spots, where, when fully grown, it may form a pleasant retreat during sunny days. It will be found that a tree, with a stem considerably bent or inclined at the top, will form the most convenient arbor tree, as the position of the stem will then be at one side instead of in the center.—[Gardening Illustrated.]

Hints on Pruning Shrubs.

Most glaring are the examples of bad pruning to be met with. We find shrubs sheared over into pillar, mound, cushion or hedge pattern with a precision as exact as it is wrong. We regard our shrubs as objects of ornament, and the healthier we can keep them, the more beautiful make them, the more we accomplish the end for which they are planted. By the shearing process we annihilate the purpose we intend to promote; we rob the shrub of their best flower-bearing wood, induce a thicket of switchy shoots, and enervate the constitution of the bushes. The rounded tops may appear handsome to some, but to the initiated they are exceedingly distasteful.

Shrubs appear most beautiful in their natural fashion, that is, in easy glowing grace—in which state they continue healthier, and blossom more copiously, and we can enhance that condition by judicious pruning.

Instead of clipping off the young growths to within a few inches of their bases, the bushes should be thinned out, the old and gnarly branches removed in favor of young ones, weakly switches entirely cut away, a well proportioned body of strong, healthy young branches and shoots maintained, over-crowding, crossing and interlacing prevented, and shoots that have grown out too far shortened back to proper limits. All branches should have room enough to ripen, and the shrubs present well and fitly furnished forms. This is the work of winter, but it is not enough; action should be taken, too, in spring and summer. A large curtailment of the wood of healthy shrubs, even in the winter time, is hurtful to the subjects operated on. Timely attention in the spring, when wood-buds push on every side, to rub them off, except such as are needed to maintain the equilibrium of the plant, replace those that ought to be removed, and keep up the supply of healthy, flowering wood, will be a labor-saving in the winter, and do the shrubs much good besides. Summer-pruning is re-attention to that of spring, in case where the shrubs bloom late and cannot well be touched till once their flowering-time has done. Young shrubs need more attention in pruning than old ones; indeed, a well-nurtured shrub, in mature years, requires little pruning; its energy should be spent in flowering. The pruning shears are good enough for hedges, but for garden shrubs the knife is far preferable.

To prolong the display of hyacinths in glasses, it is advisable to place bulbs in the proper glasses at intervals of about fourteen days. The glasses should be filled so that the water nearly touches the bulbs, and be at once placed in a cool, dark place for a few days to induce the formation of roots prior to the expansion of leaves and flower-spikes.

The oxalis is a very useful winter house plant, being especially desirable for hanging baskets, both leaves and blossoms being on long, slender, drooping stems. The bulbs are small, easily grown, and produce an abundance of flowers. The leaves in form are not unlike clover leaves. Three to five bulbs are required in a pot; the soil should be sandy. The blossoms are pink and yellow, and there is also a variety called versicolor, which is white with a yellow eye, the petals being crimson on the outside.

Changing the Bearing Year.

All that is necessary to change the bearing year of orchards in future from the "even" to the "odd" year is for nurserymen to bud and graft from trees bearing the odd year, and the thing will soon be accomplished. I know this to be so from experience. Something more than twenty years ago I grafted two large trees to Baldwins. Part of the grafts were cut from a tree bearing the even year, the rest from a tree bearing the odd year. About half of each tree was grafted from the tree bearing the even year, and the other half with grafts from the odd year. And about one half of each of these trees have continued to bear every even year a heavy crop of very fine large apples, the other half the next year, for nearly twenty years. I have further experimented by grafting other trees from these trees, with the same result. If anyone doubts this, let him try the experiment himself. It is a fact that there are more trees that bear the even than the odd year. Consequently more grafts and buds are cut from them than from the less numbers that bear the odd year.—*Ec.*

Salt as a Remedy for White Grubs.

We have used rock salt, both fresh and refuse, coarse and fine, (before and after plowing for strawberries in spring) as a remedy for white grubs, and have also applied it in the autumn; but with only partial success. I apply 12 to 15 bushels per acre, many grubs are destroyed; but usually enough to destroy one-half or two-thirds of the plants set in the ground. In tilled land, with light sub-soil, I often find them at a depth of two or three feet. In grass land, in summer, they are nearly all among the large grass roots, close to the surface of the sod. A good application of salt then, just before a rain, will destroy many; the land will also be benefited. Many persons plant or sow white grubs or muck worms, with manure or compost. Salt, enough to kill the worms and nucleus of weed seeds, should be mixed with such manure or compost.

The Currant Caterpillar.

The gooseberry and currant caterpillars are great pests to American fruit growers.

The following recipe for dealing with these pests is given by a County Down subscriber to the "Garden," and which he states he had used there thirty years, and never failed with it until 1879, when the daily rain washed the salt off the leaves before it had time to dry or act on the young caterpillars. Mix 1 lb. of common salt with 8 gallons of cold water, but be careful not to exceed that quantity. About the second week in May, or as soon as perforated leaves are observed, choose a dry day and syringe the bushes with this mixture. Repeat the syringing in a week or ten days should more perforated leaves appear. This mixture, though destructive to young caterpillars, will not kill old ones; these must be hand-picked.

Asparagus in France.

Accustomed as we are to simple methods of culture, the trouble some people take in other parts of the world seems almost incomprehensible. Here for instance is the account which a famous grower in Argenteuil, France, gives of this method:

"The asparagus plants must be planted near the surface of the soil, contrary to the general custom; and, also contrary to the general practice, they should also be planted wide apart. They must be earthed up in spring to have them tender and white. Earthing up is absolutely necessary, not only from a culinary point of view, but as a natural protection for the shoots, and to prevent the asparagus from being blown over by the wind. That is the object fulfilled by the mound of earth in the culture of asparagus. Afterwards, when the leaves appear, it is necessary to tie the asparagus to stakes. This protection is of great importance, for when the wind knocks over the asparagus it breaks and splits their stems, so that there is no hope of saving them."

The best water for plants is undoubtedly rain water; if this cannot be obtained, river water will do; pond water is not so good, but worst of all is hard spring water. In winter, and for delicate plants, even in summer, water should be placed in the sun until it becomes tepid before it is used.

Curing Cheese.

ADDRESS DELIVERED BY PROF. ARNOLD BEFORE
THE WESTERN DAIRYMEN'S ASSOCIATION.

The phrase "curing cheese" generally refers to the changes which go on in the curd of milk after it has been pressed, and by which the curd becomes cheese, but these changes in part begin with the introduction of rennet into the milk, for from that moment are started the identical changes by which at a later date, and after prolonged action, the ripened cheese is developed.

The nature of these changes has been a mystery to maker and chemist alike, and much speculation, theorizing, confusion and loss have resulted in consequence. The theory which has been most commonly accepted is that the changes are produced by the influence of fermentation or common yeast action, carried on by living germs of a fungoid character, similar to mold, which have been introduced into the milk through the rennet or from the air, and which, by their growth and multiplication in the milk and in the curd, cause the changes which convert the milk into curd and then the curd into ripe, rich cheese. Taking it for granted that the curing of cheese is carried on by a fermentation similar to that in raising bread or in distilling alcohol, the treatment of the curd in manufacturing, and the circumstances of curing are made to correspond with the alleged fermentation, but somehow the results are not always as happy as they should be if this theory was correct.

The disciples of the fermentation theory are nevertheless numerous, and lay great stress upon it, and observe the nicest discriminations in carrying the fermentation to an exact degree of development as determined by a certain supposed indication of acidity alleged to be the result of the above-mentioned fermentation. It is sometimes quite amusing to see with how much precision cheese-makers attempt to regulate the development of acidity, as an indication of fitness for pressing and curing, and to note the satisfied reliance they seem to enjoy in falling back upon exact rules and regulations however imaginary, and thus relieving themselves from the labor of reasoning or thinking about the matter.

But a study of the facts does not at all sustain this theory. It has been demonstrated by rigid proof that the curing of cheese goes on without obstruction under conditions in which it would be impossible for yeast fermentation to act. When there is a question as to whether changes are going on by fermentation or some other cause, there is a short way of deciding it by the use of choliform. All fermentation depending on yeast or organic germs, is suddenly arrested when the fermenting substance is immersed in choliform as readily as if the choliform was not present, hence we know that cheese is not cured by fermentation. It must be cured by rennet, because there is no other agent to act upon it when it is known that fermentation takes no part in the curing, no other agent having been added. The action of rennet is the action of digestion, since rennet is only a digestive agent from the stomach of a calf. It is therefore eminently proper to call the curing of cheese a digestive process.

Having shown that fermentation is not necessarily concerned in curing cheese, let us see how it is with acid. The fact that lactic acid is usually present in cheese while curing, is no proof that it takes any part in the changes in curd necessary to its conversion into cheese. If it was *always* present in curd while curing, it would afford a *presumptive* evidence that it took some part in the curing, but not a *positive* proof, because it would still be possible that it was only there as an accompaniment, and not as an actor in the changes, just as the fact that nitrogen is always present in the air we breathe, is no evidence that we utilize it in our breathing, for it is well known that we do not. We inhale four times as much nitrogen as oxygen in every breath, but no use whatever is made of it. We utilize only the oxygen. The assumption that lactic acid cures curd into cheese and is the cause of the fine flavor peculiar to cheese, because it usually happens to be present, is a gratuitous and unwarranted assumption. I will not presume to say what the future may develop, but no evidence has yet been presented to support it. The evidences which bear on this point are against it. First, it is well known to every observant cheese-maker that acid retards curing. The sourer the cheese the longer it takes to cure, and the less fine flavor in the mature cheese. It is unreasonable to suppose that the curing process should depend on an

agent which is known to retard it, and that flavor should depend on what is known to abate it. Second, the cheesy flavor is often observed to commence developing before there is any lactic acid present. Third, the lactic acid, which is so prominent a feature in the young cheese, is not there permanently. After a time it entirely disappears, and the reaction of the cheese becomes alkaline, yet the curd continues to keep on curing. It grows more and more plastic and salty, and the flavor peculiar to cheese continues to develop. These facts do not look much like everything depending on lactic acid.

Another error which has crept into the creed of cheese-makers, is that cheesing process—the changes by which curd is changed into salty and plastic changes—and the development of the flavor peculiar to cheese must necessarily go on together—that cheesing and flavor are inseparably connected.

It is true that they go on pretty nearly alike, so nearly that the progress of one may generally be taken as a measure of the advancement of the other. But they are distinct operations, and each may go on independent of the other. When curd made with rennet is sealed up in an air-tight vessel it breaks down readily into a soft, rich and ripe cheese; but has none of the flavor common to cheese. Cheesing goes on but flavor does not. This is proof positive that the two changes are not necessarily connected. Flavor never develops when curd is shut out from the air or from contact with oxygen. On the other hand the greater the exposure to the free oxygen of the air, the more rapid the development of flavor. By subjecting to a strong current of air, flavor can be made to go on faster than cheesing.

These facts are sufficient for concluding that the perfect curing of cheese involves the action of the atmosphere. But by analyzing the air passing over cheese while curing, Dr. S. M. Babcock, of Cornell University, has proved beyond question that cheese while curing are continually taking in oxygen and giving off carbonic acid gas, and that the process is therefore one of oxydation. (It was also by experiments of Dr. Babcock that the action of rennet in curing cheese, just noticed, was demonstrated.)

Since we now know positively that rennet converts curd into cheese, that it is the agent which breaks it down and makes it plastic, rich and soluble and digestible; and since we also know positively that the oxydation of the curd under the influence of rennet produces flavor, we have at our command the most important data for preparing curd for the curing room.

We may now notice the influence of some of the leading circumstances which affect cheese while curing.

One of the most important of these circumstances is the quantity of rennet. All other conditions being the same, the more rennet used the faster the curing and the shorter the lifetime of the cured cheese. The action of rennet in curing is just the same as it is in coagulating milk, the more rennet the greater the effect. But a variation of conditions may in either case change the result. Of two masses of milk of the same quality, if one has rennet applied at 80° and the other at 100, the latter may receive less rennet and yet show curdling first; because the lower temperature of the former would impede the action of the rennet. So in curing, a greater use of rennet may be counteracted by higher salting, greater dryness, or lower temperature, and in effect fall behind a less use of rennet. But where other conditions are equal the curing progresses according to the quantity of rennet used.

When it is desired to have cheese fit for use in 30 to 60 days, and have keeping quality to last from four to six months, rennet enough should be used to cause coagulation to begin in night's and morning's milk mixed in 15 minutes, at 90 degrees, provided it is to be cured at 70 degrees in air of average moisture.

Cheese is sometimes made and cured without rennet or any coagulating agent. When milk coagulates spontaneously while it is sweet, the curd can be made into cheese and cured in the usual way, without the addition of anything but salt to season it, and the cheese will be well flavored and wholesome. There is always in milk a variable quantity of some agent which acts like rennet, and it aids both in curdling milk and in curing the curd into cheese. There is usually so much, that if milk is curdled with alum or alcohol, or even with some acid, the curd so made will very slowly develop into cheese. But if the milk is heated to 160, no spontaneous coagulation will

sweet will occur, nor any cheesing result, unless rennet is employed. Coagulation with the other agents will only result in pot-cheese.

Another circumstance which materially affects the curing of cheese, is the per cent. of moisture it contains. The more moisture, the more rapidly the curd becomes cheese, all other conditions being equal. But counterbalancing influences may change the legitimate effects of moisture. A variation in the per cent. of water seldom occurs without accompanying variations. The moisture in cheese is whey; and whey contains four or five per cent. of milk sugar, which is liable to be changed into lactic acid, and in this form it is in the way of the curing process. As previously stated, lactic acid never facilitates, but always retards, curing, according to its strength. The more acid, the slower curing, until it becomes so strong as to stop the curing entirely; when it will remain stopped till the strength of the acid dies away, as it will in time. In the manufacture of Stilton cheese, it is a common occurrence that cheesing does not begin under about three months, on account of the large amount of acid developed in the large per cent. of whey retained in the cheese from its not being pressed. By pressing the whey out of Stilton cheese, I have found it to cure as much in six weeks as it would cure in six months when unpressed, and the cheese was the better for it.

If there is too little water in curd, the action of the rennet will be retarded, and the curing go slow, notwithstanding there is less acid formed to hinder its progress. The action of rennet has been explained to be the action of digestion, and digestion to go on well must have plenty of moisture. The drier the curd, all other conditions being the same, the slower the curing and the longer the lifetime of the cheese. The life of a cheese may be prolonged almost indefinitely, simply by reducing its moisture, with but little variation in other respects. There is sometimes occasion for doing this, but generally it is not desirable to make the duration of a cheese too long. From the protracted exposure in very long maturing cheese, the fine aroma and something of its fine flavor will be dissipated and lost, and it will steadily lose in weight, and there is also a loss of the use of the capital involved in its production. Besides, a cheese which is a very long time in curing, seldom cures as evenly and as perfectly, and is consequently not so easily and perfectly dissolved and digested, as when cured more rapidly.

While talking about the proper amount of moisture to be retained in curd for curing properly, I may remark that, in looking over the analyses of cheese I have made at one time and another, and those in which I have been concerned, it appeared as a striking fact, that those which had been rated as the best, both in flavor and quality, had the per cent. of cheesing matter very nearly equal. The per cent. of fat might vary considerably without much effect upon the merits of the cheese, but a disparity between the water and casein always proved a serious injury to the mature cheese. This peculiarity was as true in regard to skims as to whole milk cheese. I mention this because I regard it as a fact of considerable importance, both to the producer and consumer—to the producer, because removing too much moisture needlessly diminishes the weight of his goods and does him a further injury from a depressed price from inferior quality; and to the consumer, because the inferior article is neither as useful nor as pleasing as it would be if perfectly made and cured. I was struck with the fact, for its bearing upon skim cheese more particularly, for it showed that they could, in most instances, be improved by leaving more water in them.

There is usually a large excess of casein in skims, as the butter being out, there is little else left besides casein and water; and as the water separates from the curd more readily than in whole milk, on account of the greater age of the skim-milk, there is seldom enough retained for the best effect in curing. This lack of water seems to be the principal reason why skim cheese is generally so imperfectly cured, and much poorer in quality than they need be. While an excess of water is to be avoided for its baneful effects, a deficiency should be guarded against as equally, if not more, deleterious.

It would be a safe rule to leave in water enough to equal the weight of casein, no matter whether it was large or small.

When a pound of cheese is made from ten pounds of average milk, the per cent. of water and of casein will be very nearly equal. If it takes much more than ten pounds, the casein will

be pretty sure to be in excess, and the cheese too hard and dry, or as dealers sometimes term it, tallowy. If it takes less than ten lbs., the water will very likely be in excess, and the cheese weak and lacking in meatiness. Skim cheese should retain extra water to make up, for a part at least, the weight of butter removed.

Another important factor in curing cheese is temperature. A variation of temperature in the curing-room may be made to hurry or retard the progress, or alter the character of, the curing. There is always some particular temperature at which a cheese, according to its make, cures better than at any other temperature, and a wide variation from it affects the curing unfavorably, whether above or below.

A cheese with a tight, rubber-like rind, must be cured slowly, or more gas will be pressed in it than can escape through its rind, and it will puff. A cheese full of fat must also cure slowly, to prevent over-heating, on account of the heat developed within it. The inside of a cheese cures faster than the outside, for the reason that the outside is drier than the inside, from the easier escape of moisture, and also because the heat developed by the oxydation going on all through the cheese is given off, like the moisture, more rapidly from the exterior than the interior.

A cheese with but little fat in it oxydises slowly, and, of course, develops but little warmth, and hence remains at a lower temperature than one rich in fat, and therefore requires a higher artificial temperature to effect curing at the same rate as the richer one. It is for this reason that skim cheese requires a little warmer room than one from whole milk.

Salt is still another agent which modifies the curing of cheese. It produces its effect chiefly by reducing moisture. Salt will take up in dissolving about three times its own weight of water. Though water seems to have no affinity for salt, the latter has a strong affinity for water, and draws it out of the curd to form brine, which runs away or is pressed out, thus diminishing the moisture of the curd. This reduction of moisture in the curd puts back the curing the same as it would if made drier in any other way. Salt is also a good agent for giving firmness as well as flavor to cheese. It is a much better agent for this purpose than acid; for while the latter diminishes the solubility of curd and cheese, salt increases solubility in both. Salt is so much of a solvent that it is used in the laboratory for dissolving curd to restore it to milk again.

Thus it appears that a green cheese placed in the curing-room has a great number of agencies liable to act upon it while it is being changed into cheese, viz.: rennet, moisture, temperature, air, acid, fermentation, salt, and we may add to these a power of absorption sufficient to cause it to take in any foreign odors which may happen to be in the room where it is standing. With all these agencies acting upon it, or liable to act upon it, the remark which I have often made, that a cheese when landed in the curing-room is but half made, need not seem an unreasonable one. At least, half the effect which is wrought upon the curdled milk must be done in the curing-room, and as this work is to put on the finishing touches, it is of the first importance that it should be done to the best advantage.

Some of the agencies which will be active in the curing-room are usually unalterably fixed in the make-room, such as the quantity of rennet and salt, and the liability to fermentation; but all the influences which are liable to require modification, should find in a curing-room the means of controlling them.

First of all, temperature should be under easy control. To effect this requires tight walls of non-conductors of heat. To place cheese in a room so open, or with walls so thin, as to make the temperature within them subject to all the changes of the outside air, is to defy and set at naught all the skill of the cheese-maker, and all the care and patience of the dairyman in furnishing pure, sweet milk in perfect order. The outside air may be such as to cure a cheese properly, so far as temperature is concerned, but there is no safety in trusting to the fickleness of the weather; for now that Vennor's predictions have failed, we have nothing to rely upon for weather but "Probabilities." The weather is very sure to go wrong. Thousands of dollars are lost every year by using curing-rooms which are sometimes too hot and at others too cold, and seldom at just the temperature they should be.

Then the supply of air and the state of its moisture must be regulated, for on these depend

the flavor and perfection of cheesing. But these cannot be controlled without tight walls. The air could not be shut out from an open room, nor could its hygeometric condition be regulated, when currents of air are crowding in and out with every blast and lull of the wind.

What is wanted in a curing room is a wall which will admit of shutting air in or shutting it out, or shutting either heat or moisture in or out as may be desirable to affect the cheese as occasions may require.

My idea of a curing room for cheese is a basement, half above and half below ground, with walls and floor of concrete. Such a room, with close jointed double doors and windows, would give the most complete control to temperature, air, and moisture within it. Concrete walls are poor conductors of both heat and dampness, and they are impervious to air.

These conditions we never secure with walls of wood, for wood is not impervious either to air or moisture, and heat is readily conducted through it. Heat and wet are both obstructed by wooden walls; but both find their way through it readily, unless very thick.

Plastering spread upon lath is so porous that air will percolate through it almost as easily as through perforated tin. But though an imperfect protector, it is better than nothing to break the force of the wind. A double boarding with matched stuff is much better than once boarding and plastering; but a double boarding with sound matched stuff and sheathing paper between, put on with air tight joints, is much better still.

The poorest curing rooms I find are those covered with a single thickness of rough boards with the cracks covered with narrow battens. This leaves the cheese almost entirely at the mercy of the wind and sun. If the owners were aware how much is lost every year by injury done to cheese in such rooms, they would soon go out of use. Nobody would think he could afford the loss. A room of this kind in a second or third story gives but a poor chance for cheese. If everything in the milk and making is all right, the cheese may get along pretty well when the weather is favorable; but if the milk happens not to be just what it should be, and the maker misses the mark, a little as few can help doing, and then if the weather happens to be extreme, trouble with the cheese is inevitable.

Upper stories are not good places for curing cheese, especially if they are at all open or unprotected from variations in temperature. The abundance of fresh air common in such rooms gives a development of flavor in advance of quality. The curd is stubborn in breaking down because the too dry state of the air absorbs away too much moisture from the curd before it has time to cure, and this makes the curing very slow. The cheese becomes hard and firm enough, but too much resembles dried curd in place of cured cheese. A want of quality—soft plastic texture—is a common fault in upper rooms, and a thick, dry, hard, insipid and indigestible rind covers the surface, which also detracts from the value of the cheese. The general taste, both at home and abroad, prefers a mild flavor with plenty of quality. These features are best developed in a rather low and even temperature, in a close room with air inclining to dampness. These conditions are easiest secured in a ground story with concrete walls, such as I have just mentioned. The air in such a room is better than one inclosed with solid masonry. It is less damp, and no moisture will condense upon the walls. The hygrometric state of the air within is easily controlled, because there will be no moisture in the room except what is put in—none will be absorbed through the walls. As much moisture as can be borne on account of molding is desirable. It keeps the outside of the cheese so soft and moist that it cures to the very surface and avoids waste. There is less shrinkage while curing, and the texture is more plastic and rich than when the air in the room is drier. In short, the cheese cured in a damp atmosphere has more quality than when cured in one which is dry as the air in upper rooms are pretty sure to be.

It has long been known to dealers and observant factory men that cheese shut up in a close box changed but little if any in flavor for a long time. Science has recently explained the cause. It is that air, or rather the oxygen of air, is necessary to the development of the flavor peculiar to cheese. It has also demonstrated that flavor may develop in advance of quality, or quality in advance of flavor, and that the two changes are capable of ad-

vancing independently of each other. Exclude a cheese from contact with air, and flavor ceases to increase; but the development of quality will not be impeded if a suitable warmth and moisture and other conditions for curing accompany the cheese so excluded. On the other hand, subject a cheese to a strong current of cool air, and the development of flavor will be accelerated and that of quality retarded.

This is just what happens in the curing of the celebrated Rocquefort cheese. It is first cured in ordinary curing rooms till quality is fairly developed, and then it is taken to the caves, where it is subjected to a strong current of air at about 44° to 46°. Under this low temperature the cheesing or development of quality makes but little progress, while the increased oxydation from the strong current of air hurries on the development of flavor, till it becomes remarkable for its fullness. I know of no cheese made in any part of the world that equals the Rocquefort cheese in amount of pure cheesy flavor. These discoveries, which give to the manufacturer the ability to control to his own liking the advancement of flavor or texture, is a matter of the greatest practical importance to the cheese interest of the country. To illustrate, suppose a maker finds his cheese is acquiring too much flavor, that it is developing faster than the cheesing, so that by the time his cheese would have sufficient quality for market the flavor would be too strong, he can correct this tendency at once by simply putting his cheese into tight boxes or into an air-tight room. The exclusion from the air will check the advance in flavor, while, if the temperature is right, the cheesing will keep on without hindrance till the desired quality is developed, when it will be in its best possible condition for market.

I remarked a little while ago that the taste of the great cheese consuming public prefers a mild flavor with plenty of quality, so that it is rich, soft, tender and melting on the tongue, like a ripe pear. Suppose a manufacturer wishes to make cheese of this description. After using proper skill in the make room, he will put his cheese to curing in a room with walls tight enough to admit of controlling the ventilation and the temperature. He will keep the temperature at 70° with a view to pushing along the development of quality; but checks the admission of fresh air with the view of holding back the development of flavor. The oxygen in the room will be rapidly used up in the oxydation going on in the cheese, and becomes so diminished that the increase of flavor will be so slow as to remain mild, so that the curing can be safely continued till the cheese becomes ripe and rich, without danger of getting "off" or of becoming too strong or intense.

It is much better also that cheese should cure right along at an even pace, instead of jumping at a race horse speed for a short time under the pressure of a few hot days, and then dropping down to a snail's pace when the weather becomes cool again. The finest cheese is never made by such curing. It is particularly hurtful to cheese of the acid sort—made by leaving the curd in the whey till it becomes sour. Cheese made from drawing the whey sweet and keeping as clear of acid as possible, as I have advised, stand such changes better, but they are not wholly exempt from injury from such influences.

But if we cannot have just what we consider best, let us come as near it as we can, and take the next best thing, which is a ground story with double walls with dead air-space between, and all tight enough to prevent the mercury in the thermometer from jumping to the top of the tube every hot day, or falling as suddenly when the wind changes.

If a ground story is not available and an upper one must be used, I insist it will pay all concerned to use sheathing paper or boards or both upon the walls, to make them double and even trible if necessary, till the temperature within them can be kept within a range of 20°—above 60 and below 80°—and as near 70° as possible. Anyone can do this with a little trouble and expense and attention. There is no use in building up with one hand and tearing down with the other, no use in insisting that dairymen shall furnish only the best milk and in the best order, and that the manufacturer shall make with the highest skill cheese which is certain to be reduced to second or third class by the imperfections of a faulty curing room. Much of the faulty cheese can be traced to defective curing rooms, which is now charged to the dairyman and the maker. If the curing room is made right much of the sin now laid at their doors will vanish.



NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers' Manuscript," leave open, and postage will be only 1c. per ½ ounce. We do not hold ourselves responsible for the views of correspondents.

PRIZE ESSAY.

FATTENING CATTLE—WHAT IS THE MOST PROFITABLE FOOD FOR THE PURPOSE.

SIR,—I beg leave to inform you that through the kindness of the Secretary of the Blenheim Agricultural Society, in giving me the January number of your valuable paper, I first became acquainted with it, and can truly say that I am highly delighted with it, and accordingly subscribe for it. I agree with you that one of the most important questions relative to farming is the importance of keeping Canadian stock free from disease, in order to have the free and unrestricted privilege to sell our stock in England. But there is still another question arising from this, namely, the relative worth of the different kinds of grain. I would therefore ask a few questions:

1st. Is oil cake a good substitute for turnips for fattening purposes.

2nd. If so, would it pay a farmer to buy oil cake at twenty-nine dollars per ton, providing the farmer could raise twenty-five bushels of wheat per acre, at one dollar per bushel, on his turnip ground, or four hundred bushels turnips per acre; and stop raising turnips, taking into consideration the greater expense of cultivating and conveying the root crop to barn.

3rd. Which would be most profitable, or what mixture of the following to buy for fattening purposes.

Western Corn at	\$21 00 per ton.
Peas	23 00 "
Barley	25 00 "
Middlings	16 00 "
Bran	12 00 "
Oil Cake	29 00 "

E. H., Washington, Ont.

SIR,—One of our prominent seedsmen in his catalogue gives the following table, said to be the food value of the different roots as shown by chemical analysis. Now I would like to hear your opinion and that of practical feeders as to the correctness of the table, as proven by feeding experiments or otherwise. If this table is correct, it is worth an almost incalculable sum to farmers and stockraisers; for from it we see that for simply fattening purposes one bushel of sugar beets (which can be grown for five cents per bushel) is worth more than two bushels of turnips; whereas for young stock or animals not needing fat, one bushel of turnips is worth more than two bushels of sugar beets. But, as the percentage in flesh-forming material is very much less than fat-forming, if we can raise a bushel of sugar beets as easily as a bushel of turnips, and I know that I can on my black land, at least, it would be much more profitable to raise the sugar beets altogether, and for young stock supplement with some flesh-former, such as oats.

Total amount of flesh-forming material:	Pounds
In 1000 pounds of potatoes	20 03
" 1000 " Mangolds	11.25
" 1000 " Sugar Beets	10.00
" 1000 " Turnips	12.25
" 1000 " Carrots	13.12
Total amount of carbonaceous or fat-forming material:	Pounds.
In 1000 pounds of Potatoes	237.4
" 1000 " Mangolds	107.2
" 1000 " Sugar Beets	174.4
" 1000 " Turnips	81.7
" 1000 " Carrots	139.1

This table, if correct, goes far to corroborate the high opinion I already have of the superior value of sugar beets over either turnips or carrots for feeding purposes.

E. D. S., Winona.

[The letters given above are specially worthy the careful consideration of all farmers and stock feeders. We would by no means dissuade farmers from growing roots for their cattle. The direct profit from feed is not the only profit to be taken into account. The advantage from the improvement of the land by turnip culture, the more profitable fattening on a greater variety of food, the restoring to the soil the plant food in the manure from the cattle droppings, the increased facility of taking the produce of the farm in fattened stock, compared to the transportation of grain and other heavy matters, all make a good showing in favor of root growing. But we think it more profitable to our readers to have the question handled thoroughly by some of themselves. We therefore offer a premium of five dollars for the best essay in reply to these letters, essay to be in this office by the 20th of April.]

A Letter from New Brunswick.

SIR,—Some of your readers might be interested in knowing what progress we are making in this section of the Dominion in agriculture. The past season has been a very profitable one, having had a good return from our husbandry. Wheat has been grown very largely, and yielded good returns; in some instances, as high as twenty-five bushels from one of sowing. My own did not yield over thirteen. Oats, which are the staple crop, and I may say, the staple of trade, yielded abundantly. Our farmers here think that from four to five bushels should be sown to the acre, and this practice has been long in use here; but I think (as I have told them) that they are throwing away seed; and it is also detrimental to the growth of the crop, as a war must be waged to determine the fittest to survive when the blades have reached above ground about from four to six inches. I sow as near as I can two bushels to the acre; and I raised this year from twelve of sowing 244 bushels. Buckwheat grows, I might almost say, wild here. A neighbor of mine told me, and I have no reason to doubt him, that he had raised buckwheat off one field twenty odd years, and for the last twelve years he had never sown grain upon it, although plowed and harrowed every spring. He harvests a good crop on the first of August.

Barley is also sown and yields well. I raised from 2½ bushels last year forty-four. Corn, potatoes, turnips, beets, carrots, and all root crops, do well. Our soil is a heavy sandy loam; retains moisture well; consequently not much danger from drouth. A suggestion to one who has the interests of the farmer at heart, I feel would not be out of place. Would it not be wise, as far as practicable, to endeavor to establish a uniform language of names as applied in the different branches of agriculture. For instance, the word "gypsum." It is commonly known among your people as such, but here it is known as "plaster." I use this word to convey my meaning clearly. A glossary on your first page giving the different names used for the same things in different localities, might answer the purpose. Plaster, or gypsum, is used very extensively here on newly broken sod and on land freshly manured, and also on our meadows. We give it credit for increasing our crops one-quarter, and sometimes more. I have got a quantity of red plum trees that blossom beautifully, but all turn to blight. Can you prescribe a remedy.

J., Upper Brighton, N. B.

[Wild plum trees are very apt to have their fruit blighted by a species of fungus, which causes the fruit to become diseased and swell up to an abnormal size. They are also very liable to be attacked by the curculio. We are unable to decide from the brief remarks of our correspondent as to which he is suffering from. For the fungus blight, no remedy is known; the process of jarring for the curculio is the best remedy known.]

SIR,—Can you inform me, through your journal, the German way to make a hot-bed.

J. M., Westville, Pictou Co., N. S.

[We do not know how the Germans make their hot-beds. For the usual plan, see the garden department.]

Appointing Judges at the Provincial.

SIR,—I notice in Jan. No. of F. A. a communication over the signature of H. H. S., in reference to the selection of judges at our fairs. And while I agree with my friend Mr. S. in the just cause for complaint, especially at the Provincial Exhibition the past season, where the judges on Southdown sheep particularly were men—although I would not doubt their honest intentions—evidently lacking the first rudiments of what should qualify a man to be a judge of Southdowns; not seeming to have the slightest knowledge of what constituted the characteristics of a Southdown sheep; and in more than one case giving the prize to animals with a good dash of Leicester blood in them. Now this causes exhibitors to wonder how such a state of things prevail from year to year, without any seeming effort on the part of the Board to remedy the evil. Now, sir, I feel safe in making the assertion that the exhibitors in any particular class, as a rule, are the best judges of that class that our country can produce; therefore, when they come together at an exhibition and compare their exhibits, they know just about what each are entitled to in prizes if judged correctly. Now, if two out of the three judges are practical, they will do very well; even if one is a good judge, provided the other two are aware of the fact, all may go well. But when they are all ignorant alike, they make a sad exhibition of themselves; for the very first time they pass over a class every exhibitor sees at a glance, from the manner in which they handle them, that they are incompetent for the duty intrusted to them. But the wrong distribution of the prizes is only one of the evils. Another, and perhaps a greater in some cases, is that a purchaser who does not claim to be an expert, but relies on the decision of the judges, makes a purchase of a prize animal which results in disappointment. Another attends an exhibition, at considerable expense, to gather information about a certain class of stock, with a view of selecting and improving his own herd or flock; he gets a wrong impression upon his mind, and eventually proves to him a great loss. Now the system adopted for selecting judges for the Provincial Exhibition, I believe, is for each member of the Board to name a certain number from the district he represents as judges, and out of the number so named the judges are selected. At first sight this system might look feasible enough, but when we consider that each member represents a large district composed of three or four electoral divisions, to whom he is indebted for his office; that, perhaps, he too often makes his choice more from the influence his chosen ones are supposed to wield in keeping him in his office, rather than from their fitness for the position. However, there is one thing certain: men are often sadly misplaced; as you will see what might be considered an expert on roots and fruits may be no judge of sheep, and vice-versa. Now, I think it more than could be expected of the members of the Board to be posted as to who are judges of this or that over such a large district as they represent. But it is, perhaps, easier to find fault than to point out a remedy for existing evils; and I would here differ with my friend Mr. S. In the plan he proposes, as I think, it would leave a great amount of room for dissatisfaction. Now, my plan would be to require each county agricultural society to select a certain number of competent men for different departments, which would insure men—competent men—that would attend, and avoid selecting those that would be likely to be exhibitors, as all those things would be within the knowledge of each county board. If this should draw the attention of those in authority to the matter, so as to adopt this or some better scheme, I am sure it would meet with the approval of a large number of exhibitors.

J. J., Abingdon, Ont.

SIR,—Would you be kind enough to inform me which is the best kind of grass seed to sow on our Island soil. Our red clover is winter-killed sometimes and timothy grass thin.

C. A. M., Little River, P. E. I.

[Red clover winter-kills sometimes in all sections of the country; still the Ontario farmers find it most profitable in almost every section. We believe you would find orchard grass an acquisition. Lucerne is also valuable, especially as a soil ing crop; also try Kentucky blue grass for pastures. A mixture of grasses is always thought advisable; clover should not be omitted. For price of grass seeds, proportions to mix together, &c., apply to some reliable seedsmen for catalogue. See advertisements in this issue.]

Repotting Plants.

SIR,—I have several large plants which are not doing well; I think they want repotting, as the pots they are now in are small; but I am afraid to move them as I always have bad luck with plants I repot, they never seem to grow well after.

R. S., Brooklin, P. O., Ont.

[To ascertain if a plant wants fresh potting, turn it carefully out of the pot, with the earth attached to it, and examine the roots. If they are matted about the sides and bottom of the ball, the plant evidently requires fresh potting. Then carefully reduce the ball of earth to about one-third of its original bulk; single out the matted roots and trim away all that are moldy and decayed. Probably the same pot may then be large enough, but, if it requires a larger one, it should be about two inches broader for a middle-sized plant; three or four for a large plant. If the roots are not matted but the pot filled with fibres, keep the ball entire and carefully plant it in a large pot. At the top of a large pot, an inch, and a small one, half an inch, should be left for the reception of water, without danger of overflow. A little gravel, charcoal, or pieces of broken pots should always be placed at the bottom for drainage.]

A plant newly potted must never be exposed to a strong sun. It should be watered and placed in the shade immediately and there remain until it is rooted, which may be known by its starting to grow.

Plants are frequently destroyed by repotting, merely from the careless manner in which it is done. When the roots spread plenty of room should be left open, a little hillock made in the centre of the pot, and the plant being placed thereon, the roots should be distributed around it in a regular manner, observing that they are not twisted or turned up at the ends. The earth should then be filled in, a little at a time, and the pot gently shaken to settle the earth to the roots all the way down. When filled, it should be pressed down with the hand. It is very common to fill in the earth at once, and press it hard down, which not only wounds the tender fibres, but often leaves a hollow space around the lower roots, depriving them of their proper nourishment. But the thing most necessary to be observed is, that the roots be allowed their natural course.]

Top-Dressing Fall Wheat.

SIR,—I have read with interest the many letters which have appeared these last fifteen years in the columns of your valuable paper on a great many different subjects, and many of them I must endorse as being of great benefit to us farmers, for they give us new ideas, and tell us previous to this we have farmed to poor advantage. But the letter to which I would allude at this time is one from W. T., on top-dressing fall wheat. Having practiced this method for a number of years, and always finding it beneficial, I think my plan should answer W. T.'s inquiries.

I have top-dressed at different periods of winter; but always found it most beneficial to do it late in February or early in March, after the great bulk of snow has thawed away, thus keeping it as much as possible on top of the wheat; which keeps it from thawing and freezing out alternately. We top-dressed 9 acres the last snow that fell last March, with the best results. We spread it as evenly as it was possible to be done; this I consider of the greatest importance, to cover the ground as much as possible, yet not enough to smother the wheat. I always let it stay in this state until the wheat looks green through the manure, and the land is in good working order; we then take the harrows and give it one stroke crossways of the drilling, then sow grass seed if required, and give another harrowing lengthwise, put on the roller and finish up. From this method we have always had the most satisfactory results. I spread clover chaff once on two acres, from which clover seed was cut the two following years without any further seeding.

After the treatment I have alluded to, if any of my brother farmers think they are injuring the wheat by dragging it up, they had better shut their eyes and go it blind.

J. O., Pickering, Ont.

[We will be glad to hear from J. O. again, and invite any and all of our readers to send us their experience on any subject which interests the agriculturist, dairyman or fruit grower.]

Reducing Bones.

SIR,—How can I pulverize large bones. I can obtain them easy, but do not know how to pulverize them to the best advantage.

D. B., Cobourg, Ont.

[Various methods of reducing bones to a convenient size have been given in the ADVOCATE from time to time. When composted with fresh horse manure in alternate layers, three or four inches in thickness and well wetted as the pile is made large, bones will in a few weeks, a correspondent says, become so much softened that they can be broken with a fork. Any tough customers which resist this treatment at first can be put in another pile with fresh bones. In this way he has rotted a ton of bones with the aid of two cords of manure. A covering of muck or earth will prevent loss of ammonia from the fermenting heap, but of such loss there will be little danger, if it is kept moderately moist. If you can get ashes cheap as well as bones, you can pack the ashes and bones in alternate layers, three inches thick in water-tight casks, and keep the mixture wet with manure water or house slops. The bones will be softened down in a few weeks in hot weather, but not until a longer time in cold weather.]

Kind of Scions to Cut.

SIR,—Are scions taken from young trees or grafts as good as those taken from bearing trees.

H. T. E., Granby, P. Q.

[This has been a disputed question for a long time. A nurseryman of large experience writes as follows: "We have grafted thousands of trees with scions cut from bearing trees, and many other thousands with scions cut from young nursery trees two to four years old, and have planted trees grafted with each in orchards and watched them for years, and could never see that the two scions made a particle of difference in any way. We think apple root-grafts made from the scions from healthy young trees make a better "stand" than those from old orchard trees, and do believe that such scions give a cleaner, healthier growth, than scions taken from old orchards, simply for the reason that old orchards are, as a rule, full of those hidden microscopic diseases and parasites that are seldom found in fresh young nurseries. We believe that there might be a slight difference in top grafting on bearing trees as to early fruiting with scions taken from bearing trees, but we also believe that this extra early fruiting is not at all desirable in the long run. Young trees as well as animals should grow, not bear, and we have often heard the views here given publicly expressed by our most observing horticulturists of experience."]

SIR,—I have (through the pressure of other matters) been on the point of stopping my paper several times, but I am thankful that I have not, for it gives the most value for the money of anything I get. As you invite correspondence, I have a matter I wish to call the attention of others to, namely, the dividing of the townships into school sections. Now, I think it would be better for all parties to form Township Boards, and have one equal taxation all through the township. For instance, I may live in section one and my neighbor in another section. Although nearer to our school he cannot send his children to our school without paying. Again, our section may be a large section and our taxes light; we can afford to hire a first-class teacher, thus giving our children a better education. Whereas perhaps section two is a small one, their taxes are heavy, and they have to cut their cloth according to their means and take a third-class teacher. Now, I do not see any reason in that way of doing business. Let the taxes be equal, the school open for all, and then one child has an equal chance with another.

L. B., Crowland.

SIR,—I receive great benefit from your paper. The receipt, "salt and water for horses' hoofs," had a very beneficial effect on a young horse of mine. It was lame in its forefeet. I commenced applying the salt and water, and it acted like a charm. If we could get a Percheron stallion down here I believe it would do well. Let me know if one could be imported into this vicinity.

E. R., Barronsfield, N. B.

[Mr. Dunham, of Wayne, Du Page County, Ill., has these horses for sale in large numbers. See his advertisement in this issue. You would have no trouble in importing one. By enquiry you can ascertain the probable expense.]

Relative Value of Corn Fodder Hay.

SIR,—Can you tell the relative value of corn-fodder, "well cured," and good English hay?

[Water-free corn-fodder, or such as has been thoroughly dried at the temperature of boiling water, contains on the average 8.6 per cent. of protein or albuminoids, 1.45 of fat and 49.7 of nitrogen-free extract or carbohydrates. Water-free timothy hay contains about 8 per cent. of protein, 2.3 of fat and 58 of nitrogen-free extract; the perfectly dry substance of the corn-fodder is therefore somewhat richer than the hay in respect to the valuable protein, but much poorer in fat; on the whole the difference in feeding value of the dry substance would be slight. But, in their natural condition, there is a difference in the amount of nutriment in equal weights of the two kinds of fodder; field-cured corn-fodder may contain from 28 to 36 per cent. of water, or, according to the very few analyses that have been made, an average of 30 per cent., while ordinary hay contains about 14 per cent.; in other words, a hundred weight of corn-fodder contains only seventy pounds of dry substance having the composition given above, against eighty-six pounds in the hay; 123 pounds of the corn-fodder must be given to supply the same nutriment as 100 pounds of hay would contain. This may be considered as a fair approximate statement of the relative value of the two fodders, based on their chemical composition. As to statements of relative value based on experiment or experience, they are exceedingly scarce, while there is an abundance of testimony to the effect that corn-fodder is very valuable for winter feeding.]

SIR,—What would you consider a good growth of apple trees—what per cent., allowing to die from first year's planting, and is it safe to purchase from travelling agents?

J. S., Middleton, N. S.

[If properly planted and trees good there should not be over 3 or 4 per cent. loss. We would consider it safe to purchase from agents representing firms of good standing, such as we endeavor to draw your attention to in the advertising columns, we only advertising such as we feel confident are reliable men. To those intending purchasing largely we would advise to write to those advertising in this journal for quotations, whether intending purchasing largely or not, as we always feel safer in getting our stocks direct; and we know also that our advertisers would only be too glad to communicate with you. What we say to you we say to all; write to our advertisers for anything you may wish to purchase or wish to know the cost of. We have an average of the growth of trees from Mr. Bryce, planted on his farm near Lorne Park. Out of 1,000 apple trees purchased of Mr. John Gray, Parkdale, Ont., only five died.]

East vs. West.

SIR,—As your paper is open to all comers as a field for expression, I take the liberty to ask through it why it is that so many of our farmers, old and young, are so bent on going to the Far West when there is just as good, if not a much better, chance for them nearer home? Just as good land and I am sure a much better climate, with much better government regulations, and a very much better market for the productions of the farm—I mean in the Province of New Brunswick. If those farmers or farmers' sons who wish for a change would just look at the map of this vast Dominion of Canada, they will see that New Brunswick is east and very little north from Ontario, and New Brunswick has millions of acres, which the Government offer to actual settlers 100 acres free; also will sell 100 acres at \$80 to actual settlers, and in no other way can the land be obtained, which I think is the wisest plan any Government could carry out. It keeps out land jobbers and prevents the land being locked up by monopoly. I see by agricultural reports that the land is as productive as it is in Ontario, brings as good, if not better, prices, as a man can get 100 acres for himself and the same amount for each of his sons over 18 years of age. Why then, let me ask, will men say, "I'll go west," without reflecting for one moment whether they could not do as well, if not better, by going east. We don't hear of the mercury going down to the bottomless pit in New Brunswick like we read of in the Northwest. Why, during winter, we

scarcely get a paper but reports the death of some of our old neighbors by freezing, and who would not freeze when the mercury gets down to 48 below zero? I would say to the farmers and farmers' sons, go west if you please, but when I make up my mind to leave Ontario I will go to New Brunswick. I have good reliable authority to say that the St. Croix River, which divides New Brunswick from the State of Maine, has not frozen over in ten years to stop shipping. We can't say as much for any river in Ontario. It is my intention to pay a visit to New Brunswick at no very distant day, and see for myself these great inducements, and the advisability of starting a colony from Ontario. And I may say that I see by the Maritime Farmer that they have just as wide-awake Agricultural Societies as Ontario or any other country. At all events, there are just as live men there, which can be seen by your last issue of the ADVOCATE. Depend upon it, New Brunswick is destined to become the most valuable Province of this Dominion, on account of its nearness to the European markets. I am sure it is second to no other Province for stock raising. It is one of the best watered Provinces of the whole Dominion. St. John will yet be one of the greatest shipping ports on this side of the Atlantic. In conclusion, I would recommend all who desire to leave Ontario to consider well before they leap, and bear in mind that the east is as good as the west, and likewise that it is far more congenial for Europeans or us Canadians than the Far West. If any one can say anything against what is herein contained let us hear through the ADVOCATE.

G. H., Stamford, Ont.

How to Start a Farmers' Club.

SIR,—We are about forming a Farmers' Club, to meet weekly for discussion of matters relating to the improvement of agriculture, and reading papers on same subject. Can you assist me with rules of any such clubs. I may be able to give you an account of our meetings and readings when any subject of importance comes up.

N. G., Oakville, Ont.

[We received several other inquiries on same subject from various parts of the Dominion. We are glad to see Canadian farmers take an interest in this subject; there should be one such club in each township, which should meet weekly, or once in two weeks throughout the winter months; it might be discontinued when the busy season sets in, but resumed early in the fall. Your first duty when wishing to form a club would be to get together as many good farmers of your vicinity as possible, appoint a chairman, draft out your constitution, which should consist of a few simple rules to govern your meetings. These should state where your meeting place should be, how often you should meet, what the initiation fee shall be, how your expenses shall be met, the number of officers, when they shall be elected, and how.

All the officers you will require will be a President, a Secretary and a Treasurer.

A small initiation fee should be imposed on all who join the club, also monthly or quarterly fees should be paid by each member; the sum thus obtained should be used to meet the necessary expenses, which will be very light; each member will be taxed accordingly. For further particulars see May number (1880) of ADVOCATE, page 111.]

The Most Profitable Kind of Sheep.

SIR,—What kind of sheep would you recommend as most profitable to the Canadian farmer?

C. C. M., Kinsall, Ont.

[As we have frequently stated before, we believed a systematic improvement of the common herds and flocks of the country would prove the most profitable course for the general farmer. In the case of our correspondent, we would advise him to get as good grade ewes of the Leicester or Cotswold breeds as is convenient—we believe the latter are the most profitable—and cross these with a Shropshire or Southdown ram. This cross produces a sheep which sells well in the English or other large markets. Alter all your male lambs; select the best females of each year's crop to breed from; weed out and fatten the most inferior animals each year; always breed from a pure-bred male; select a male of the breed best suited to your wants. In most cases it will be found advisable to always select your males from one special breed. Shropshires are the most promising breed at the present time to use as crosses.]

Transplanting Large Trees.

SIR,—Being a great admirer of trees, I used to have an ambition to remove some quite large ones, thinking I might thus gain a few years of tree-growth, but it is done at much greater expense and risk than that of planting younger trees; besides, in many instances, the smaller trees will grow so much thriftier than large ones when transplanted as to often outstrip them in size after a few years, so that now I am generally content to plant out small trees and wait for them to develop. But from my experience with the resetting of large trees I have found it of almost vital importance to stay the body by ropes or poles, bracing it so that it cannot be swayed by the winds in the summer after the foliage is well out, for that would have a great power for such a tree to resist, and if left to itself, or allowed to be swayed much, the young rootlets that have begun to knit into the new soil will be broken or disconnected, and such movement will prove fatal to any tree, even if it had made ever so promising a start up to that time, and the planter, nearly assured of success, would see his tree droop almost in a day. But if a tree of such size is properly braced it will be most likely to live. As for cutting off the tops of trees when setting them out, which is recommended by many, I don't believe it to be according to nature or to science, but it is barely allowable if a man will not in some way secure such trees against the action of winds for the first year or two, for, with their tops thus denuded, the leverage which the wind will have on the roots by the body of the tree is, of course, much reduced.

H. I.

Apples, Pears, Plums and Peaches.

SIR,—Do you think it would be a profitable investment for a young farmer to set out large apple orchards. We ship to the English market at about \$1.50 expense per barrel. I feel afraid that in a very few years the supply will exceed the demand, and consequently prove unremunerative to the grower.

Do you think it more profitable to raise pears than apples where favorable, and what kinds would you recommend for this latitude?

Do you think plums and quinces would pay better than either apples or pears, and if so, what are your reasons?

My soil is a heavy loam inclined to clay.

J. P., Middleton, Annapolis Co., N. S.

[Apple orchards have been fairly remunerative for some years wherever judiciously planted and properly cared for, and we see no valid reason to fear that the supply will exceed the demand. The demand in Great Britain for good Canadian apples is very great and the home demand has greatly increased. Fruit is no longer considered merely a luxury; it is an article of food of daily consumption, and its true value is as yet scarcely sufficiently appreciated. Pears command higher prices than apples, but the crop is more uncertain, the more so now, from the pear blight. Plums would be more profitable than apples, if in a favorable locality, and you could prevent the ravages of the curculio. The price paid for quinces is very high; but they are less productive than apples, and not in such demand, being only used for preserves; besides the trees are short-lived and not so hardy as apple trees.]

DURHAMS—BOUND VOLUMES OF THE ADVOCATE.

SIR,—Are there any breeders in Ontario who are breeding pure-bred Durhams for their milking qualities? Have you the ADVOCATE on hand for 1880, bound, and what price? A SUBSCRIBER.

[Bound volumes for 1880 can be had, price \$1.50. Back volumes are scarce. Four dollars are offered for a complete number of vol. 1. Anyone having that volume in good order might inform us, and we will give the address of the applicant. Many Canadian breeders have good milking families of Shorthorns in their herds. See "Breeder's Directory."]

DYNAMITE.

SIR,—I had seen some time ago, by an advertisement in the ADVOCATE, about the using of dynamite for the purpose of blasting oak stumps. Would you be kind enough to publish in what way it should be done, also where we can purchase the dynamite, and at what expense.

[We have had no experience with dynamite. Will some one who has had experience answer?]

Shad Fishing.

SIR,—Shad fishing is a favorite branch of industry in this locality, therefore answers to the following questions would be of interest: 1.—Where do shad have their spawning beds? 2.—Are there shad hatching establishments in the United States? If so, give some particulars. 3.—We often tend our set nets in the night; by reason of the darkness and fast retreating tide, fail to ground our boats in the right place. What phosphorescent substance attached to a stake would prove a beacon after the water leaves it?

A. B., Kings Co., N. S.

[In order to give correct information on this subject, we inquired of Mr. Wilmet, of Newcastle, Commissioner of Fisheries for Ontario. The following is his reply:—

Yours received with note asking certain questions about shad.

1.—Shad are a migratory fish, coming from salt water to fresh water rivers and bays to breed, generally in June. The Hudson and Connecticut in the U. S. and the St. John and Miramichi in N. B. are some of the places frequented by shad for spawning purposes.

2.—There are several shad hatcheries, or places where these fish are artificially bred, viz., in the Hudson, Connecticut, Merrimac, and many other rivers throughout the United States. Shad are not usually hatched out in fish-breeding establishments, like salmon and trout. The eggs are gathered from the fish in the open river and immediately placed in hatching boxes expressly made for the purpose, where in time (varying according to temperature), from two to three and four days, they hatch out into small fry, which shortly afterwards pass down to salt water to get their growth. For special information regarding the hatching of shad, apply to Seth Green, Esq., Rochester, N. Y.

3.—The best phosphorescent substance by which the stakes of the nets can be found at night is the fisherman's brains; but there must not be any "forty-rod mixture" in them.]

Starch and Cheese Factories.

SIR,—Last autumn a starch factory was erected at St. Peter's Bay, P. E. I.; the farmers in that direction agreeing to sell their potatoes for 14c. per bushel for five years. At the present time farmers are holding meetings in various sections of the Island for the purpose of starting similar factories.

I am of opinion that farmers can utilize their potato crop much better by converting it into milk, cheese, butter, beef, mutton, pork, eggs, &c., which would be more remunerative than disposing of them for the paltry sum of 14 cents. In my opinion, a cheese factory would be much better and cheaper, and could be got up on the same principle—the farmers agreeing to sell their milk for a given price. This would encourage and stimulate the farmers to raise and feed better cattle for milking purposes; as the more milk, more money.

As we are strangers in this Island to the working of cheese factories, and as your paper is purely in the interests of all agricultural pursuits, will you be kind enough to give us your opinion on the subject, and the manner in which these factories are conducted in Canada.

J. D. D., Montage Bridge, P. E. I.

[However anxious the farmers of P. E. I. may be to build up a home market for potatoes by the establishment of starch factories in the Island, they would, we think, be "paying pretty high for their whistle," by raising potatoes to sell at 14 cents per bushel. We see that they are sold at 20c. to 25c. per bushel in the Maritime Provinces, for export to New England and New York. Better to do as you suggest—convert their potatoes into butter and cheese and into beef. This will bring some remuneration, and increased fertility of the soil by the application of the manure from the cattle being fed on the premises, will be no little additional profit. Farmers do not sufficiently appreciate the value of potatoes as food for cattle. The way to conduct a cheese factory:—Engage a man practically acquainted with the business to open the factory; the farmers in the vicinity undertaking to supply him milk, each a given quantity. He makes the cheese and sells it, giving to each one the proceeds in proportion to the milk supplied, having deducted the expenses. We would advise you to procure Prof. Arnold's work on dairying.]

What to Sow.

SIR,—Would you answer the following questions in *ADVOCATE*:—I have ten acres of land ploughed last fall for the first time, though it has been cleared and free from stumps for ten years, and is covered by a pasture of natural grass. It is rich clay loam, with from three to six inches of black earth on top; it can hardly be called muck, for it is solid, having got packed by pasturing so long. I have ploughed it about seven inches deep, and turned up some of the clay with it so that in harrowing they will become mixed, but the black earth will be the prevailing soil this season until the sod rots and the clay is brought up by working. It is pretty well drained, though perfectly level, no water ever remaining on it. It seems so rich that I am at a loss what to put on it for fear of having all straw. Can you tell me what grain would be the best? I would like to put part of it in Hungarian or millet, and on part sow corn in drills for feed, if you think it would do on that land.

Where can I buy Emporium oats? What is the best kind of spring wheat for my land—rich clay loam? Is white Russian good? Will potatoes do well on muck, well drained, or on such land as I describe? Will turnips or mangolds do well on such land? What is the customary way of letting a piece of land on shares? Which is the best best Hungarian or millet; will it do to feed horses?

I. L. D., Ottawa.

[Emporium oats may be had from seedsmen. Of the cereals, rye succeeds very well. Oats do well if sown early. For best variety of wheat to sow see article "Spring Wheat," in the present issue of the *ADVOCATE*. Russian white wheat has been highly spoken of in some localities. Potatoes yield a heavy crop on such soil, if well prepared, though very subject to injury from frost. Swedes do not do so well on muck as on other soil. If well cultivated and mixed with the clay that is under the muck and manured, it should yield heavy crops of roots. It is especially well adapted for mangolds. The mode of letting land on shares is regulated by the custom of the locality, or by agreement between parties. Between Hungarian grass and millet there is little difference. Both are good forage plants. If intended for hay they should be mown while yet green. The seed is said to be injurious to horses.]

Foreign Opinion of the "Advocate."

SIR,—I have the pleasure to enclose you the annual subscription for two copies of your *FARMER'S ADVOCATE*. Please send one copy as usual to my address, the other to Mr. J. Freeland, Broadgate Strathblane, Glasgow, Scotland. Thus, you see, being so well satisfied myself with your most useful paper, I am desirous of granting the same information to my friend in Scotland, and shall be glad of an extra copy; and I will try for more subscribers in this district. With our free trade regime we are anxious to know what is doing across the water, that we may act accordingly to meet competition. Newspapers are the best medium, and farmers of the present day require the aid, not only of home, but foreign agricultural journals, to assist them with their business. Weather is now intensely cold here; we have one of your winters; farming prospects dull, and little prospect of an immediate revival. Markets closed in consequence of foot and mouth disease. Cattle are not allowed to leave the Metropolitan Market alive.

R. T. S., Etherley, Surrey, England.

ALSIKE CLOVER.

SIR,—What kind of soil is most suitable for Alsike clover? How much seed should be sown per acre?

C. T.

[Alsike clover is said to be a hybrid between red and white clover. It has the long top root of the former with the fibrous root of the latter, and the blossom is a sort of half-way between these two varieties, of a light red or pink. It does not yield so heavy a crop as the red clover, and the seed ripens earlier and with the first cutting. Bees can gather its honey, and it grows well on moist low lands, where red clover would be winter-killed, its fibrous root taking a stronger hold on the soil, and not being so easily thrown out by frost. Notwithstanding its apparent good qualities, it has failed to become popular, and is very little grown, excepting by bee-keepers for bee pasturage. [Six pounds of seed per acre is sufficient.]

Systematic Agricultural Education

Was discussed by Prof. S. W. Johnston, at a recent meeting of the N. Y. Farmers' Club. He said: "The farmers' present want is not so much owing to a lack of knowledge, as to a better ability to systemize. The farmer obtains his education through schools, colleges, farmers' clubs, and agricultural exhibitions, but there are grave defects in all of these or we would not be here discussing. Foreign countries in some respects are ahead of us. They excel us in methods for making farmers. We have no system that will insure to every boy who is to become a farmer a suitable education. More of the simple elements might be taught in our common schools. Children may be taught much of plants, minerals, and even chemistry, in school, without interfering with other useful studies. Under a competent teacher a child may learn more in a few weeks of the things which he sees every day than his parents can know. Our text-books are sadly at fault when they go to the ends of the earth to describe a kangaroo, while they leave the child ignorant of the domestic animals and insect enemies which are such a power for good or ill at our own doors, accordingly as we understand them. We can get much more into the school hours that will benefit the child if we set ourselves about it. If the Board of Agriculture and the Board of Education would work together in the matter they might do better work.

With these views, I quite agree something should be done in order to give our boys, who are to be the farmers of the future, a better agricultural education than they are now receiving. Many farmers' sons go to school for about eight months or less each year, many of whom are fairly advanced in English branches. The desire of their parents, as well as their own, is that they may be successful farmers. Now to be such they must know more of their business than most farmers of the present day do; especially for the benefit of these, if for no others, the elements of agriculture should be taught in our district schools. I fully agree with the Hon. Mr. Wedderburn in his remarks before the New Brunswick Board of Agriculture on this all important subject, agricultural education; also in the recommendations of the board to their government, as reported in the February number of the *ADVOCATE*. Some time ago I noticed it reported that agriculture had been introduced into the primary schools of France. I may say further, I quite agree with your editorial of some time ago, recommending tree planting and flower culture in our school grounds. As reported by you in your last issue, the Board of Agriculture of New Brunswick recommend to their government, the importation of \$12,750 worth of live stock into their province for the improvement of their native stock. Where do they intend to get these animals? Our Ontario government fell into an error when they sent to Europe for the stock which is now kept at the college farm. The animals were imported at a large cost, and were not as good as they could have bought of stock breeders in Ontario at much less cost. We instance this that the above board of agriculture may not fall into the same mistake. Our advice to them would be to buy from reliable breeders in their own Province or sister Provinces. There are many good breeders throughout the Dominion who can sell them animals just as good, and as well bred, and for much less money than they can import them from Europe, for beside saving money, the board will not run one tenth the risk of loss or danger from disease.

In justice to the breeders of their own province they should adopt this course. The breeders have already benefited the province much by their enterprise. The profits of a fine stock breeder are not large, his losses are frequently heavy, and he should be encouraged rather than have government opposition.

Lobo, Ont.

PRACTICE.

WHEN TO TRIM GRAPE VINES.

SIR,—Please inform me when is the proper time to trim grape vines.

L. S., Uxbridge, Ont.

[The time generally recommended for pruning or trimming grapes is from December 1st (better, still, from February) to April 13th, though grape culturists prune at different times. After your vines have grown, after transplanting one year, rub off all shoots in March or April save one. The second year cut off again all shoots save one. The third year form a head on which all future pruning is to be performed.]

Mode of Judging Stock.

SIR,—I have been a subscriber for your paper nearly from its commencement, and am much pleased with its steady improvement, until it is now, as you justly say, the best agricultural paper in the Dominion, if not on the continent. We have in the *ADVOCATE*, as its name implies, a staunch friend of the farmer; let it continue in that course, till it becomes a still greater power for good in the land.

Your suggestions in last issue, anent the judging of farm stock by points, if acted upon at our fairs, would, I think, have a very beneficial effect, not only in securing the great desideratum, uniformity of type in the different classes of animals, but also a more uniform justice to exhibitors. Shorthorn cattle especially seem to require such a system. From their short history as a distinct breed, there seems to be a tendency with them to develop into various types, caused, no doubt, partly by different treatment and fancy of breeders; but to other causes must we mainly attribute this defect—if we may dare to call it such. The very causes that operated in their first improvement, is their one weak point. I mean the selection and mating the best within reach without particular regard to family. We have now ample material to select from, but a breed so widely spread requires some common standard of excellence to be set up for breeders to aim at. The utmost caution should be exercised in adopting such standard—requiring the best judgment and the greatest experience available. As a breeder of Durhams in a small way, I for one would gladly see such a system adopted.

W. P., Humber, Ont.

Amber Cane.

SIR,—For the information of readers of the *ADVOCATE*, I wish to inform you that for the last two years I have raised Amber Cane, a variety of sorghum, and with good success. Year before last I had near one-half an acre, and had it manufactured in Clinton for one half of the produce. I got 33 gallons of syrup for my share. This season I had a little over one-quarter acre, and received about 20 gallons, of a much better quality than the year before.

I believe if the mode of managing it were understood by farmers it would be a very profitable crop. It requires about the same cultivation as Indian corn, and will come to perfection in any climate where corn will grow.

G. C., Goderich, Ont.

Complaints Concerning the Shorthorn Herd Book.

SIR—Can you tell me if John R. Craig is still Secretary of the Agricultural and Arts Association of Ontario? I have written to him three times—once enclosing money, and, so far, have failed to get an acknowledgment.

J. M.

Melbourne, P. Q.

Another subscriber says he sent money to pay for registering animals, but received no acknowledgment. After considerable delay he again sent money for the same purpose, inclosing more than the amount required. After waiting for a long time he received certificates of registration, but has never received the balance of money due him.

A. E.

Brucefield, P. O.

M. G., Oakville, Ont., writes:—Cannot something be done to get the Herd Book out annually. Wherever I go I hear complaints. I do not believe the breeders of thoro'breeds will stand the present system much longer.

Do you know of anyone who has second-hand copies of the Herd Books, one to four, to dispose of? Anyone having said copies, if they desire, can, no doubt, dispose of them by communicating with this office.

[Mr. Craig is still Secretary of the Agricultural and Arts Association. If you cannot get replies from him, we would advise you to write to Hon. Mr. Wood, Commissioner of Agriculture for Ontario; address, Toronto, Ontario. As he is the head of the Agricultural Department of this Province, Mr. Craig is accountable to him for any neglect of his business. These charges are of a very serious nature, and, at least, give evidence of Mr. Craig's carelessness and inattention, and certainly call for examination of the facts by his superiors. These

are not the first complaints we have received by any means. Last May we received a letter from a breeder of Shorthorns, which was published in our June number, in which he complains of the delay in issuing the 4th volume of this publication, stating it was then three years since some of the pedigrees which are to appear in the 4th volume were sent to the secretary, and said volume is not yet issued; any one can see how much this delay detracts from the value and usefulness of the book to breeders. He goes on to say that he has consulted members of the board concerning the H. B., and who tell him it is published at a loss to the society and state that they do not know where the fees go. Our above correspondent does not seem to know either. The fact of the matter is, the Canadian Shorthorn Herd Book is an injury instead of a benefit. In the first place it is nothing but a grade register in reality; when it was first founded the standard of entry was very high, and in this respect was all breeders could wish it. The first volume was issued according to said rules; but afterwards animals with four crosses were admitted as pure-breds. We all know an animal with four crosses is nothing but a grade and animals of this description are totally unfit to breed from, and by the best breeders have never been, or are they at present recognized; in fact animals which have been shown and won prizes as grades are now registered in our herdbook as pure-breds. As an example we would mention the case of the late Hon. David Christie, who for some years in succession won very valuable silver cups presented by the late Adam Ferguson, for the best grade heifers; said animals were afterwards registered as pure-breds. If admitting grades to record were the only fault of our herdbook it would be enough to condemn it. The injury it has accomplished in misleading Canadian farmers cannot be computed. For instance, a Canadian farmer may wish to improve his herd; he buys or perhaps imports some choice Durham cows; he then wishes to buy a bull and visits several stock breeders, selects one which he thinks best suited for his purpose; this animal is recorded in our herdbook, the farmer is not an expert on judging pedigrees (not one farmer in a thousand is) but finds it recorded and is satisfied, buys and uses him; but finds his progeny does not turn out well. Still he perseveres, perhaps for 10 years, always buying registered animals, some of which breed well, some do not; finally he discovers that two thirds of all the bulls he has bred from are nothing but grades, though registered.

Thus his money and time to a great extent are lost. Bad as this case is it does not end here; but every one who has bought breeding animals from this man suffers likewise, and the great majority of the stock of the whole country is thus injured. Hence the great necessity of admitting to the herdbook nothing but pure bred animals.

In this matter all the prominent breeders of America agree with us; many of Canada's best breeders do not register in Canada, but patronize American herdbooks, simply because ours is not reliable, and American and Canadian breeders have no confidence in it. Money spent on the Canadian herdbook is worse than wasted. To be of any use it should be revised, and all animals not purely bred should be rejected. If this cannot be done, then do away with the Canadian herdbook. In any case its management should be in the hands of the breeders, and not under the control of the association.

POTATOES AND CARROTS AS FEED.

SIR,—How will potatoes and carrots do for milch cows; which will be the best? What kind of cows would be the best for milk? C. M., Yale, B.C.

[Potatoes and carrots will do well for milch cows. Potatoes are eaten with avidity by all animals. For cattle they are very nutritious. The yield and quality of milk are improved by feeding them. Carrots are unsurpassed for milch cows, producing a good flow of milk and a rich yellow cream. The greater yield of carrots makes them more profitable for feeding than potatoes, the produce being from two to three times greater. Ayrshire cows are noted for a large flow of milk, but it is not rich. We would prefer Shorthorns of a good milking family.]

SIR,—I find the mice have girdled a large number of my young apple trees this winter. Will the trees amount to anything if I cut them off where they are girdled?

A. E. G., Essex Centre, Ont.

[Where they are badly injured dig them out and plant others.]

Seeding Down.

SIR,—I will feel obliged by your giving me some information on the sowing of grass seeds. Last spring I prepared a field for sowing grasses, cultivating well and sowing timothy, red top and clover seed, without grain. There was a good catch, the seeds germinated well, and there was a luxuriant growth, the land being in good condition; but in a short time the weeds grew thick and rank so as to almost smother the young grasses. As it is, many of the weeds grew so strong and obtained such a root in the soil that I fear I will find that I have given myself a task to free the land from them. This spring I am about to sow grasses in another plot that I have prepared for the purpose. Would you advise me to sow grain with the grass seed, or to run the risk of having my grass land overcome with weeds, as is the case with the land laid down last year.

X. Z., Frontenac, Ont.

[Sowing grain with grass is a practice very much followed, though it is strongly condemned by many, as the grain crop would exhaust the soil of much plant food that would otherwise be valuable nutriment for the young grass plants. It is also objected that when the grain crop is cut there is danger of the sun's rays scorching the tender plants, when they have been deprived of the shade so beneficial to their growth. In land that is inclined to throw up many weeds, we would advise you to sow barley—a thin seeding—with the grasses, and cut it for hay before it is at all ripe. It will help to keep down the growth of weeds, as they do not grow so luxuriantly in cropped as in uncropped land, and the barley growing so much quicker than weeds will serve to smother them, while the grasses growing more slowly will be uninjured. The barley being cut before maturing, the grain will not impoverish the soil. It is the maturing and perfecting the seeds of cereals and grasses that tend to exhaust soil.]

BEANS AS A FIELD CROP.

SIR,—I wish to grow beans as a field crop next season. What variety would be most profitable? What kind of soil is best adapted to their growth? What is the best mode of planting?

ENQUIRER, Castleton, Ont.

[The common white bean would suit your purpose better than any other. They will grow on nearly any soil, but are partial to land of a quick dry nature—too great strength or fresh manure or fresh manuring giving a large quantity of straw without a corresponding quantity of fruit. The land should be finely pulverized, and, if at all inclined to be wet, should be ridged. Beans are tender plants, and cannot bear the slightest frost; as they grow rapidly they will be sure to ripen if planted when this is no longer to be feared. The seed is apt to rot if put in the ground when too cold and wet. They are usually planted in hills about two feet apart, but sometimes in drills; in either case cover the seed about two inches with fine earth. They have also been sown broadcast, on clean dry soil, and produced largely. When planted in hills, from four to six plants should be left in each hill—if in drills, sow about 1½ bushels of seed per acre.]

HENS WHICH EAT THEIR EGGS.

SIR,—My hens are laying well, but they eat their eggs as soon as they lay them. Can you tell me a remedy.

W. J., Vellore, Ont.

[Cut their heads off, and in future do not let your hens' eggs freeze and lay around the hen house; this is generally the first cause. When they once form the habit they seldom leave it off. Such birds should not be allowed to run with hens which are addicted to the habit, else all will become unprofitable. Animal food should be fed plentifully to laying hens, and is thought by some a means of preventing this habit.]

WORMS IN HOGS.

SIR,—My hogs are troubled with worms. I have fed ashes without the desired effect. Can you give a remedy?

T. D., Sparta, Ont.

[Give a teaspoonful of coppers to each hog six months or over; give half the dose to younger animals. Give by mixing with mush made of chopped grain.]

Swelling.

SIR,—My bull "Duke of Solvray" (1651), has what I take to be a tumor forming in his throat. I noticed a swelling in his throat, in the fall, extending from one side of his jaw about six inches along his throat, and about the same distance up the side of his neck. I dressed it with lard and turpentine, and it went nearly off. I did not notice it again until lately; but now it is growing again, and instead of a wide-spreading, soft swelling, as at first, a hard lump about the size of a hen's egg is forming in the centre of it, which appears to be attached to the throat about three inches behind the jaw-bone. I intend to dress it again with turpentine. It does not appear to give him much pain when handled, but he is getting very thin. This, whatever the cause is, is a very common disease among the cattle here; but except in very few instances it does not appear to do any permanent harm.

I also lost two pigs the other day, and am rather at a loss to describe the cause. The anus protruded about two inches, and although still feeding heartily, they pined away and died in about a week. I opened one of them, and found several little things of a dark chocolate color and about the shape of a bean attached to the gut and tenderloin from the anus back to the kidneys. They were all sizes, from a pin's head up to a grain of wheat, and the centre of them when cut open was of a much lighter color, almost grey.

A. C. H., St. Leon, Man.

[We are of the opinion that the swelling you speak of is enlargement of the thyroid glands, situate on the sides of the neck, opposite the third or fourth tracheal ring. Clip the hair off the enlargement and apply tincture of iodine once a day with small brush; it would be advisable to give him drachm doses of iodide potash two or three times a week.]

In the case of the hogs, change the food and give drachm doses of sulphate iron and sulphur twice a day; if the bowels are costive, give castor oil; do not allow them to be in too warm a place; see that they have plenty of fresh air.]

THE PEA BUG AGAIN.

SIR,—Our experience with the pea bug is quite similar to that of your correspondent J. L., in January number of *ADVOCATE*. Late sown peas with us, have so far escaped the depredations of the bug that several of our neighbors, who have sown theirs early, are changing with us, so as to get seed peas free from bugs.

I am of opinion that to get rid of the pest, we have but two ways, either to sow late enough, say 1st June, so as to escape it, or to thresh the crop as soon as harvested and get the peas chopped so as to kill the insect, getting the next year's seed from bugless districts, or from late sown peas.

Many farmers will object to the former, for the reason that in an unfavorable season the crop would be too light, and the latter could only be partially successful as long as the farmers did not all destroy their bugs.

It is not the bugs that are sown with the seed that do all the damage; but those that mature and escape, to hide in some nook or corner, from which to sally forth when instinct calls them. Neither are they particular whether they get to a neighbor's field, so long as they find pods fit for their purpose.

Pea growers have therefore to decide whether they will continue in the war with the bugs, and destroy them wherever they find them, or whether they will sow late enough to escape them, which is the only remedy we can see for individuals.

NEW SUBSCRIBER, Hespeler.

EXPERIENCED WITH SWISS OATS.

SIR,—I sowed some on the 15th of April, and some as late as the 5th of June, and found them to be from seven to ten days earlier than our common black or white oats, with straw full and strong, weight about 38 lbs. per bushel, the heads well filled and grain not liable to fall out; they will grow well in poor land. If barley fails these oats can be sown and a good average crop obtained.

J. M., Whalen P. O., Ont.

Benefits of Sowing Salt.

SIR,—When is the best time to sow salt before the grain is sown; when it is sown or after it is up?

In the December number, page 282, I see W. C. Fish, of Onondaga, N. Y., sowed after the wheat. Is there no danger of killing the young plant by sowing the salt on it?

We have read the *ADVOCATE* for years and we would not like to be without it. I often find one number worth more than the year's subscription. W. A. A., Castleton, Ont.

[All the reports we have received state 300 to 400 lbs. per acre will not injure young crops, and produce as good results sown one time as another.]

We have given many articles on this subject, and recently made further enquiries of Messrs. Gray, Young & Spaulding, who send us the following letters, which they have received from farmers who have had experience in this matter:

SALT AS A TOP-DRESSING.

SIR,—In reply to your enquiry, I will state results, as far as observation will allow, as to the use of salt as a top-dressing on this year's crops.

Sowed from 250 to 300 lbs. to the acre on spring wheat; variety, White Russian; soil, clay loam. Result: started cutting 31st July a heavy crop; a remarkably well-filled head; clean straw, unaffected by rust; will average at least 25 bushels per acre. A small portion not salted in the corner of field, badly rusted and ten days later in heading. Sowed a small corner of field of Silver Chaff fall wheat with salt. Result: straw brighter and heavier; head better filled and grain brighter than where unsalted. Sowed 9 acres "Arnold's Victor" at same rate per acre; soil, much of it black muck with clay subsoil. Result: a very heavy crop, though had to take off; did not lie down too soon, consequently the heads are well-filled, which I attribute to the salt alone. Sowed a small piece of oats with salt. Result: ready for the reaper at least one week earlier than where unsown with salt. None of these crops are yet threshed, therefore I can only speak as far as my observations will allow.

I am fully satisfied that salt sown on fall wheat at the rate of 300 lbs. per acre, besides producing a better sample of grain, will increase the yield at least five bushels per acre on any variety of soil; and what I say regarding the use of salt on fall wheat, I repeat with greater force as to the results of its use on spring crops generally. E. G., St. Helens.

SIR,—Our experience is that salt on crops of all kinds is beneficial; it increases the yield, hastens maturity, assists greatly in preventing rust, the grain is much plumper and straw stiffer; it appears to benefit all kinds of soil. We apply about 300 pounds to the acre. G. B. M., Uxbridge.

Salt for Wheat.

SIR,—In reply to R. H. in your February number, although not the author of the remarks under the above heading, I may offer some hints on the subject of salt and its effects upon various soils and crops. I will leave the task of vouching for the statements made in the article referred to, to "C. C.," the author, merely remarking that the soil is, I believe, light, sandy loam, with possibly a clay subsoil in parts, land rather flat. I have had extensive experience with salt on different soils and crops, and have from time to time noted its results. There is no doubt whatever but salt is beneficial in all light sandy and loamy and muck soils, but in hard clay I have always found it tends to bake the soil, and is therefore of no value, but rather the reverse. Salt has much the same effect upon light and muck soils that a strong tonic has upon a desepetic person. I do not consider it as a fertilizer in itself by any means, but it helps to dissolve and bring together otherwise dead or inactive substances in soils. Take, for example, a pot of soil from the bottom of a newly dug well; it is dead soil, and if seed is put into it the seed will not germinate, but die. But put salt into the pot and mix well into the dead soil, and then a day or two afterwards put seed into the soil and it will germinate and shoot up rapidly. Put salt into soil, on which there is a crop of any description, and it will discover and bring into action every

particle of matter that is of value, and the crop roots will make use of such matter. It follows, therefore, that continued salting will tend to impoverish land under crop, unless manure is added frequently. Take a wheat field, sow salt upon one-half and leave the other without; it will be observed that the growth is much more rank where the salt is used, and the plants shoot out stronger, the straw is brighter in color, stiffer and clean, and the grain much brighter and more plump generally. I have seen a field of spring wheat where salt was used upon one-half and the other left without. Where salt was not used the joint worm had made havoc, but in the rest of the field almost every stalk stood straight up. When the crop was cut and threshed there was a difference in favor of salt of eleven bushels, and seventeen pounds per acre, and the sample of grain was much finer besides. In dry seasons there is nothing I know of that will give new life and vigor to a pasture field like a light broadcast sowing of salt, and its beneficial effect is easily seen in meadows in the deep, rich, green and mellow appearance of the growing hay. To the intelligent horticulturist the benefits of salt are evident; his apples are more free from worms, they are bright and clear in the skin, and color is brought out more marked. I remember the first time I observed a collection of apples upon an exhibition table from a well salted orchard. No one could help being at once attracted by their fine appearance. I naturally enquired into the whys and wherefores of the case, and the explanation was given of the use of salt in liberal dressings upon the orchard. I afterwards had several orchards tested, using salt upon one-half and leaving the rest without, and in every case convincing evidence of the beneficial results of the use of salt was seen.

In the flower garden, too, salt will work wonders, especially in giving prominence to the blending of colors, and in a more rank growth of plant. Pansies raise up their heads and show a brighter countenance, as if joyful at their own good looks. Some flowers look double, that otherwise would appear small and indistinct in blending of shades in color. But I might go on to tell of the benefit of salt on a bed of strawberries and other fruits, or in the field on corn and barley or other crops. I could give very many actual instances of careful experiments upon various crops, but think enough has been said now to induce farmers and others to make a more liberal use of salt upon all soils excepting a stiff clay, upon which I have no hesitation in saying it should not be used. LAHRAX, Goderich, Ont.

HOW TO SAVE MANURE MOST PROFITABLY.

SIR,—The best method of taking care of the manure made on the farm is one of the most important subjects we can study. My plan at present is this:—I have a large covered shed, built like a barn, between the cattle and horse stables, so that I can wheel the manure into it from each without going out of doors, and I let some young cattle and the pigs run loose there. This, of course, keeps all the manure under cover, and is considered as good a plan as any in this neighborhood.

But I am not quite satisfied. In the first place I lose a large part of the liquid manure that runs away from the cattle stables, and this amounts to a great deal if you feed roots, and then there is the everyday's work of cleaning out the stables (of course I am referring to the plan of tying all the cattle in the stables as I do at present.)

Now, my idea is that if we had box stables for each animal, without tying them, and kept putting in fresh bedding, without cleaning them out as long as they had room to stand over it, we should save every particle of the manure, and it would be more convenient to clean out the cattle stable once or twice in the season when you could get a man or two to help, than it is to be working at it every day.

I have kept my calves this way, running loose in a close house, for many years, and never cleaning them out until spring, and then I have always from two to three feet of manure under them, solid as a cheese, and apparently of as good quality as any made on the farm. I can see no objection to this plan, except that the cattle would require more space, as each box must be large enough for the animal to turn round easily.

But as experience is a surer guide than theory, however plausible, if any of your numerous subscribers have tried this plan I should very much like to hear how it answered and what they think of it. H. A., Westminster, Ont.

SIR,—We appreciate your paper, which is ever full of valuable information. It is four years since we moved into this wildwood, which is rapidly changing into comfortable homes by the hands of industrious and persevering men—yes, and boys, too. I always like to say a word for the boys, as the future of our country depends on them. We are eight miles from the village of Wagnetawan, which is our post-office as yet. There are two churches, a grist and sawmill, three stores, two taverns, a blacksmith shop and a crown land office, and numerous dwelling houses, &c. We are only one mile from the river, which we find very convenient in summer, as it saves our teams so much. Burk's Falls is eight miles up the river, and promises to be a thriving town as soon as the P. J. Railway is completed, as it is expected to cross in its vicinity. There is also a grist and sawmill five miles east of us, which has just started operations. There is a government road from Wagnetawan past our place to these mills, so we can go to whichever we like. The crops were very good last season. Some people complain about the frost; but it is only late crops that have been damaged in this vicinity. I have hardly lost anything by the frost since I came here. W. F., Wagnetawan.

WHERE TO BUY A FARM.

SIR,—I have recently arrived in this country from England, where I was a farmer. I have \$20,000 in cash; would you advise me to go to Manitoba or to the southern or western States.

J. S., Kingston, Ont.

[Our advice would be to buy a farm in Ontario. Any one with half the capital you have would do well here and enjoy greater privileges than could be obtained in the places you mention. In this issue there is advertised for sale by H. H. Spencer a very superior farm. We have often been on this property, and know it is all Mr. S. recommends it to be, and is in every way a very desirable property. See advertisement.]

SIR,—I have a valuable cow, and shortly after calving warts grows upon her teats, which cause them to crack and makes her almost unmanageable in milking. I would be very much obliged for any information with regard to their treatment. D. W. D., Collingwood, Co. Grey.

[Dress the teats well before and after milking with equal parts of tincture arnica and glycerine.]

SIR,—I have had my horses all laid up with an itchiness on the skin, and they rub their hair off badly. Do you know of any cure? Z. B., N. W. T.

[Your description is not sufficient to determine what is really wrong with your horses. In the meantime it would be well to give a dose of purgative medicine, say about six or seven drachms of aloes with a drachm of carbonate of soda and a little ginger, in a pint of water, and follow with a powder every night, in bran mash, of one drachm each of nitrate of potash and sulphur. You will examine them and see if there are any lice on them.]

HOW TO HEAT A GREENHOUSE.

SIR,—What percentage will bones lose by burning with wood fire? Which is the most economical to heat a greenhouse, hot water, steam or brick flues? Would you advise hot water or steam? Who is the best manufacturer of such apparatus? J. M., Sherbrooke, P. Q.

[Bones only lose animal matter by being burned; all the phosphate of lime remains after burning, which is the most valuable part of the material. Hot water is the best and most economical method. There are many different kinds of boilers in use, the makers in each case claiming some advantages over their competitors. Garth, of Montreal, and several English and American firms manufacture.]

T. C. R., Ottawa, and J. L. Holton.—Berberry plants should be secured from nurserymen. The seed is best when sown in the Autumn; they will not germinate as well if left till Spring. We know not who has the artichokes you speak of for sale. Apply to Mr. James Gregory of Marblehead, Mass., as he generally secures any novelties of that kind, procurable in the States.

For want of space we have been obliged to hold over considerable correspondence until next issue.

Farmers' Insurance Companies.

The Westminster Township Mutual Fire Insurance Co. held their annual meeting at Skelton's Hotel, on Feb. 7th, 1881, and the following statement by the Secretary shows what may be done by farmers wanting to insure their own property.

At the time this company was established in 1858, there were no Mutual Companies doing business in this part of the country, and any one that wanted to insure had to pay one per cent. per annum on the amount insured to some proprietary company. This the farmers of this township thought to be too much, and established this company for themselves, and fixed the annual payment at one fifth of one per cent. on the amount insured, and an experience of twenty-two years has proved that this payment, only one fifth of what we were paying before, has been rather more than double what was required to pay all losses and expenses of management, as we have accumulated upwards of \$12,000 (twelve thousand dollars) of a surplus without ever calling for a special assessment.

So that the actual cost of insurance in this company has been rather less than one tenth of one per cent., or one dollar per annum to insure \$1,000.

The reasons why it has cost so little compared to other companies are: 1st. We have been uncommonly fortunate in escaping heavy losses. 2nd, the expenses of management are but a trifle. It is managed entirely by farmers, and for many years at first the directors and officers did most of the work gratis, and even now the total expenses of management, including salaries, directors, fees, printing, &c., only amounted to \$246, for last year, (1880). 3rd, the company is confined to one township; no agents are employed. The directors, seven in number, elected each year at the annual meeting, are of course acquainted with nearly every person and all the property in the township, so that those who insure with the idea of making a profit out of a fire, generally choose some other company, as they find that it would not be so easy to cheat this one by any false statements, as, besides all the directors being in the same township, all their neighbors as members of the same company are interested in seeing that it is not defrauded.

We feel satisfied that if a company like this was established in each township it would prevent many fires and save a vast amount of money to the Province that is now sent abroad to foreign Insurance Companies, or spent in paying high salaries to officials in towns.

But there is no doubt it is far more difficult to start a Township Insurance Company now than it was at the time this one was established; nearly every one now is already insured in some company, and whatever may be the ultimate advantage, men are naturally timid to leave an old company and join a new one before it has accumulated sufficient capital to inspire confidence and pay any loss that may happen without making extra calls upon the members. Still what has been done may be done again, and if the farmers of any township are inclined to try it, they can find all the necessary information with regard to the formation of these companies in chap. 11 of the Revised Statutes of Ontario.

The Gardeners' Chronicle writes to this effect:—It is clear that the danger to plants from frosts is proportionate to the water they contain. If they are in an unripe, sappy condition the danger is far greater than if they are comparatively dry and at rest. Tubers and seeds, for instance, are specially adapted to resist cold; and how well they do so has been shown in the case of wheat which germinated after having remained throughout the winter in the Arctic region.

Our Correspondence.

We believe we never had a greater amount of correspondence than we have had for this issue. There is much that is highly instructive, and must be of great value to our readers. We particularly thank the contributors of such valuable articles, and hope it may cause any well-wisher to agriculture that heretofore, from bashfulness or other causes, have withheld information which they knew to be of value to their fellow farmers, to contribute. A long series of questions which do not impart information are often asked, but we endeavor to reply to the most important as opportunities occur. Some ask questions that are only of interest to themselves—some of which would occupy too much space or too much time to answer; some ask questions which have already been fully replied to in the ADVOCATE. We do our best to give the most useful information to the general farmer. Many letters have arrived that have not the name or address of the writer; some few would absorb the whole subscription price in postage and paper in replying to them. If any have been neglected that have been deserving space for replies in the ADVOCATE, you must attribute it to error of judgment. Again we thank our contributors. Can there be any higher duty than to impart information?

Obituary.

We regret to chronicle the death of Mr. Alexander Pontey, who died on the 25th February, at his residence, Westminster, Ont. He was one of the best informed nurserymen in Canada. His loss will be felt by many. As a judge on fruit he was considered the highest authority by practical men in his locality. His information was firmly grounded, his grandfather having been an eminent landscape gardener, florist and nurseryman in England. Our readers have received much valuable information from his pen.

Land Plaster.

A writer in the *Country Gentleman* says there is a great benefit to be derived from the sowing of Nova Scotia plaster broadcast over the meadows and pastures. The free use of plaster may not be noticed in any appearance of the growing crop other than a brighter or darker coloring. Other fertilizers may promote a rank succulent grass that may increase the flow of milk, but of a poor quality, yielding little butter. Cows fed on pasture which receives a fresh sprinkling of plaster in the spring will remain in good flesh through the milking season, and give large quantities of milk that contains more butter than when fed on pasture that has never been given this dressing. The juices of the grass are richer and healthier. This is something new to us. Have any of our readers noted like results?

A Number of Horses Die from Eating Smut of Corn.

Thos. Frank, of Westminster, Ont., has been feeding corn and cornstalks to his young horses, and recently had occasion to throw out a quantity of smut and refuse which had collected on the barn floor. A number of colts eat it—five of the animals have since died. We have heard of a number of similar cases in this vicinity. The most striking symptoms are a peculiar dullness, almost amounting to a torpor; an unsteady gait; the head and ears are drooping; the animal has difficulty in swallowing. After a time the power of swallowing ceases; breathing becomes labored; the limbs become paralyzed, and death soon follows. Rudd & Tennant, V. S., of this city, have been very successful in the treatment of animals thus affected.

Pleuro-Pneumonia.

For a long time a very serious disease in the U. S. is now, according to the *Ky. Live Stock Record*, assuming a still more serious aspect, the following is an extract which appeared in the issue of Feb. 12th of the above paper. The *Prairie Farmer* receives credit for being the first to bring this before the people. Both of these papers we believe to be reliable publications:—

PLEURO-PNEUMONIA IN IOWA.

There is hardly any room to doubt that contagious pleuro-pneumonia has at last gained a foothold in one Western State at least, if not in more. Information comes from Bedford, Taylor County, Iowa, that a number of cases of this disease have occurred there. We hope it may prove to be a mistake, but unfortunately the probabilities are that the report is true. During the past summer and fall about 20,000 of the calves brought from the East—there were over 50,000 distributed in various Western States—were scattered in Iowa. It was represented these calves came from Michigan, but it is well known that nearly all of them were purchased in Ohio. The idea that Michigan furnished that number, or anything approaching it, is absurd. We should be very glad if we could credit the story, for in that case there would be no ground for alarm in this instance about pleuro-pneumonia; unfortunately it is not the case. Another item which has reached us is to the effect that cattle taken from Iowa to a point in Nebraska, proved to have been infected with this disease, but we trust that this is a mistake. If the disease has actually broken out in Iowa, the farmers and stock-raisers of the Western and central Western States are face to face with a foe the like of which they have never encountered. The situation is exceedingly grave, and demands immediate and effective action. It is not for the purpose of creating unnecessary alarm that we record these reports.

As many of our readers are aware there is unrestricted traffic between the infected States of the American Union and those supposed not to be so, as above stated, thousands of calves are yearly sent from the east or infected regions to the west; under such circumstances, how can the Western breeder hope to escape this disease? That this disease does not exist in Canada is certain, and so long as our Government enforces the rigid restrictions which now exist it can not effect a foothold. But these restrictions must not be relaxed, but rather made more severe than otherwise. With these restrictions our cattle are allowed to land alive in England and be sold as freely as English stock, and from this cause alone, we receive from \$20 to \$25 per head more for our stock than the Americans do for theirs. Last year we exported about 50,000 cattle, for which the Canadian farmers received \$1,000,000 more than they would have received had our country been effected with pleuro-pneumonia or other infectious diseases.

The United States House Committee on Agriculture discussed the subject of pleuro-pneumonia. Assistant-Secretary French, of the Treasury Department, gave some interesting information. He stated that Italy, Spain and Portugal have absolutely prohibited the importation of hogs or pork from the United States because of the prevalence here of the hog cholera; that the value of this article of export reached \$80,000,000 per annum. He believed the existence of pleuro-pneumonia and hog cholera had been thoroughly authenticated.

We are in receipt of the *Illustrated Stock-Dealer and Live-Stock Encyclopedia* from the World Publishing Co., Guelph. The work contains over 1,000 pages; it is very differently got up from the trashy, stuff generally offered in the present day, being bound in plain, strong calf, that gives it an appearance of solidity and worth. The contents are useful and practical, and furnish farmers a lot of information that is very valuable to them. By referring to the index of the different diseases, a farmer may, in an emergency, save the life of an animal. Every farmer should be in possession of such a work, and we think it the best of the kind we have seen. It is a Canadian publication, and should be in the hands of every farmer.



The Family Circle.

"Home, Sweet Home."

Maud Rochester's Valentine.

CHAPTER I.

"Who could have sent it to me? Who could it have been? I don't know the writing! How dared anyone send me such a valentine!"

Maud Rochester's beautiful face flushes angrily as she utters the above question half aloud, and rises impatiently from her low seat by the fire in her boudoir, which is a dainty, luxurious room, well befitting its fair occupant—who although St. Valentine had laid a multitude of offerings at her feet, through the medium of the postman, on this St. Valentine's morning, seems anything but pleased.

Her eyes—wonderful, lustrous, beautiful eyes—have an unmistakable glitter of annoyance; the small red mouth, which is so beautiful and so eminently kissable, that one cannot but regret the expression of pride which curves the crimson lips is set firmly, and the lips are compressed with anger; while the pretty jeweled fingers are clenched into two diminutive fists, which look as if they would be dangerous if they could.

Now, Miss Rochester's cause for annoyance is not a very grave one. Among the numerous valentines which she found heaped up beside her plate on the breakfast-table this morning is one which puzzles and angers her, and which she is inclined to think more about than about all the rest put together.

Most of the offerings are costly and beautiful ones—Rimmel's most exquisite creations in the shape of sachets, and marvellous trifles of silver lace and chubby Cupids; dainty fans and elegant articles of jewellery—of which Maud has more than she can wear already, for not only is she a belle, but she is an heiress, and she has admirers and suitors by the score.

She has opened the dainty packets with the utmost indifference, and hardly glancing at their contents, has tossed them aside one after the other, until she had come to this large square envelope, which contains merely an embossed sheet of paper, a clever little pencil-sketch of her own face, with these lines written beneath:

"Lady Clara Vere de Vere,
Of me you shall not win renown;
You thought to break a country heart
For pasture ere you went to town.
At me you smiled, but unbeguiled,
I saw the snare and I retired;
The daughter of a hundred earls,
You are not one to be desired!"

"Lady Clara Vere de Vere,
I know you proud to bear your name;
Your pride is yet no mate for mine,
Too proud to care from whence I came.
Nor would I break for your sweet sake
A heart that dotes on true charms;
A simple maiden in her flower
Is worth a hundred coats of arms!"

"Lady Clara Vere de Vere,
Some meeker pupil you must find;
For were you queen of all that is,
I could not stoop to such a mind;
You sought to prove how I could love,
And my disdain is my reply;
The lion on your old stone gates
Is not more cold to you than I!"

Maud Rochester is by no means a general favorite, nay, her pride makes many dislike her; and when at school she roused the ire of many of her companions by her cold, reserved manner and haughty demeanor. Thus it happens that the little sting of truth in her valentine wounds our fair heroine, and makes the lustrous eyes flash, the red lips curl, the fair cheeks flush with resentment.

"Who could have sent it?" she murmurs, half aloud, as she paces up and down the pretty room, her soft draperies sweeping the velvet-pile carpet on which her tiny high-heeled slippers made no sound. "Who dared to send it? I wonder if—but no," she adds, with an impatient gesture, "he is too much of a gentleman to send me such a thing; besides—ah, how the sweet rose-bush mounts to cheek and brow, and how the lustrous eyes soften—I have never been proud to him." She takes up the paper again, and examines it with the most minute attention.

"It is a very peculiar handwriting," she resumes in a moment. "I am sure, if I had ever seen it, I should not have forgotten it. Whose can it be? Whose can it be?"

At this moment a knock at the door makes her start slightly and crush the valentine into her pocket, as she answers by a rather impatient "Come in," and the knock is followed by the entrance of a fine-looking young man of seven or eight and twenty, who glances at the heap of offerings on the gipsy table with a little laugh and a shrug of his shoulders.

"Poor victims," he said, laughing. "It must be hard lines for the postman, fair coz. The sleigh will be round in a quarter of an hour. Can you be ready?"

"Of course I can! I had no idea it was so late. Did you ever see such a heap of useless articles, Arthur?" she answers, laughingly. "How much better it would have been to have given the money they cost to the poor!"

"Ingrate," says Arthur Rochester, with a laugh. "So that's the way you look upon such offerings? I am very glad I resisted my inclination to send you one."

"I am very glad you did; but you can give the money to the Children's Hospital. There is the list on my davenport; put your name down while I go and put on my hat."

So saying, Maud leaves the room and goes up stairs to don her skating-costume; while her cousin obeys her mandate,

and puts his name down on the list of subscribers to the Children's Hospital, adding after it the magical figure £5.

Arthur Rochester is the only son of Sir Weston's younger brother, and to him the title will descend at his uncle's death. Report says that Sir Weston would have no objection to receive him in a nearer relationship, and that Arthur is in love with his beautiful cousin; but Maud knows that his affection for her is purely fraternal, and that she herself is very fond of Arthur in a sisterly fashion.

Mr. Rochester's sleigh is waiting when Maud comes downstairs in her dainty skatin-costume of dark blue velvet and chinchilla, looking lovely as a dream, and as bright as the morning itself; for although she has not forgotten the obnoxious lines, she has laid aside her resentment *pro tem.*, with a resolve that if she can discover the sender, she will be revenged to the utmost of her power for the insult thus offered her; and the cousins drive away together in the best of spirits, chatting and laughing gaily as they go rapidly over the snow, the bell ringing cheerily as the horse tosses its graceful head.

Very soon they reach their destination—a small lake in the grounds of a neighboring estate, which the owner opens to some of his friends during the cold weather for the purpose of skating, and where already some score of people are assembled.

Miss Rochester receives a very warm reception, and is soon surrounded by a little court of admirers, although her cousin usurps the privilege of putting on her skates, and reminds her of her promise to go round the lake with him.

"There is Arlington," he says, gaily, as hand in hand they glide gracefully away. "Who is that with him, Maud? What a beautiful little creature!"

Miss Rochester glances at the couple indicated, and the rose-flush on her cheek deepens slightly as she does so. The man is a tall, stalwart, handsome specimen of the *genus homo*, and he is bending over a fair young girl, who is evidently taking her first lesson in skating, for she clings to her companion's arm with helpless dependence, and looks pale and nervous.

Rochester's admiration is excusable, for even her awkwardness—people are very awkward when they first begin to skate, as doubtless you are aware, reader mine—has a pretty grace about it, so naturally graceful in every movement is the same slight, fairy-like figure, while the eyes lifted to Captain Arlington's are blue as forget-me-nots, and a mass of golden hair escapes under her sealskin hat, and falls over her jacket of the same fur.

"Yes, she is very pretty," Maud says, indifferently, wondering why she experiences such a keen pang at her heart as she notices the young officer's tender care of his companion and her familiar dependence on him.

"Pretty—she is lovely! I must get an introduction to her!" Arthur says, enthusiastically, for he is decidedly a squire of dames.

"Perhaps Captain Arlington may not be inclined to give you one," answers Maud, languidly. "He seems very devoted." Arthur glances at her quickly. "Something in her tone strikes him, and he remembers that they cannot tear themselves away from her side. But, after a time, Maud professes herself fatigued, and, dismissing them, seats herself on one of the hand-sleighs, nestles her hands into her muff, and gives herself up to a reverie, which is broken at last by a deep, musical voice, asking if she is tired, and for permission to push her round the lake.

Looking up with a little start, Maud's lustrous dark eyes meet Captain Arlington's, and the red color fades a little on her cheek.

"Did I startle you? I am so sorry! Forgive me!" he says, gently. "I have left my sister with Mr. Rochester, who seems a far more proficient teacher than I am, and I thought I might venture to intrude on your solitude."

"Intrude!" Maud repeats, with a sweet, sudden smile, as one tiny gloved hand steals out of its warm nest and goes out to meet his. "It is anything but an intrusion, Captain Arlington. Is that young lady your sister? I did not know you possessed one."

"I have that happiness," he said, smiling, his handsome face brightening under her sweet glance and gracious manner. "Will you allow me to introduce Lily to you presently, Miss Rochester? She is staying in the neighborhood for a time with Lady Saunders."

"I shall be very happy to make her acquaintance," Maud answers, graciously. "How lovely she is, Captain Arlington! You must be very proud of her."

Captain Arlington smiles, and looks pleased at her praise; and then, swiftly and vigorously, he begins to propel the sleigh. And as they speed over the ice together, Maud feels wonderfully bright and happy, and forgets all about the disagreeable valentine which had so annoyed her.

Captain Arlington is a very delightful companion. He is well read and intellectual, has been abroad for some years, and has made good use of his eyes, and ears, and intellect. Perhaps Maud's beautiful, interested face and earnest attention inspire him, for he is even more agreeable than usual, and an hour passes over swiftly.

How happy they are, absorbed in each other! Gilbert Arlington avowedly (to himself, of course) is in love. He had fallen head over heels into the abyss on his very first introduction to Maud; and although he feels himself that such an affection is almost hopeless—for Maud is beautiful, high-born, and wealthy, while he, although a gentleman, is poor—still she has been so gracious to him during their acquaintance that he cannot quite lose sight of a glimmer of hope, and, like a moth, plays round the candle, singeing his wings and endangering his happiness.

He loves her with a depth of love which he himself hardly conceives. He is naturally rather sensitive and reserved; but all reserve is thrown to the winds now. And although he

says no word of love to her, Maud's eyes droop under the love in his, and the colour comes and goes in her cheek as she listens to the tender, impassioned tones of his voice. She is very happy, unspeakably happy, although she does not try to analyze the reason for that happiness, and ascribes it to the blue sky, the clear frosty air, which is truly as exhilarating as a glass of champagne, and the swift, pleasant motion of the sleigh as it flew along.

"I think it must be time to go," says Maud, at last. "Papa does not enjoy his luncheon if he is obliged to take it alone. I wonder whether Arthur is ready to go. They seem in some confusion over there, Captain Arlington," she adds, eagerly. "I am afraid! I think something has happened!"

She rises as she speaks, and turns to her companion with a quick little movement of sympathy, for she has caught sight of something which has drained the colour from her cheek, and she wonders whether he has seen it also.

He has seen it, and for a moment his dark cheek has turned pale as her own, and unconsciously he is pressing the little hand which she has slipped into his so closely that the rings cut into the soft flesh.

"It is Lily!" he says, huskily. "I am afraid she is hurt!"

"I think she has only fainted," Maud answers, reassuringly, as they hurry across the ice to the group gathered round Miss Arlington, which opens to let them pass.

Miss Rochester is right in her conjecture that Lily has fainted. She has slipped on the ice and slightly sprained her foot, and the pain had caused her to faint. She is seated on a chair, and the pretty golden head is resting on Mr. Rochester's shoulder as he stands beside her, looking alarmed and so concerned; but he makes way for Captain Arlington, who takes his place by his sister.

"She is not much hurt," Arthur says, in a subdued tone. "Maud, I am glad you are here. Send these people away, will you? What is the object of all this pushing and crowding?"

"I think she will be better immediately," Maud says, as she bends over Lily, and puts her vinaigrette to her nostrils. "If you will leave Miss Arlington to my care," she adds, glancing up, "it will be better for her not to see so many faces when she recovers."

Gradually the on-lookers fell away, and when Lily opens her eyes, she sees Maud's fair, pitiful face bending over her with a tender, reassuring smile.

"You are better?" she says, smiling. "Yes; that is well. You have frightened these good folks dreadfully," continues Maud, with a glance at her cousin, and Captain Arlington. "My cousin Mr. Rochester, is *au de-espoir*, as he imagines himself to be the cause of your fall."

"No, indeed," Lily says, eagerly, with a sweet, shy glance at Arthur's concerned face. "It was all my own. I wanted to be very clever, you know, Bertie," she adds, turning to her brother, "and let go of Mr. Rochester's arm."

"You feel quite better now, dear?" her brother asks, tenderly, as he bends over her. "What a foolish little lassie it was to faint!"

"Yes, I am quite ashamed of myself," she answers, laughingly. Then she thanks Maud with her pretty, shy manner, and turns to her brother. "I think, if you will take me, I should like to go home," she says. "I am quite able to walk, Gilbert, indeed."

"I could not think of allowing you to do so," Maud says, decidedly. "Arthur's sleigh is here, and he can drive you home first, and come back for me."

"Happy thought!" says Arthur, eagerly. "You will not refuse to trust yourself to me again, I hope, Miss Arlington? Your brother will be with us, you know."

"I am not at all afraid," Lily answers, with the most charming smile, and Arthur goes off to order the sleigh round to the lake, leaving Maud to improve her acquaintance with Miss Arlington, which she does with a winning graciousness which makes Lily's heart all her own, and rivets the chains she has already cast over Captain Arlington; and when the sleigh comes round Lily feels truly sorry to lose sight of her beautiful friend.

"Will you come and see me?" Maud says, smiling. "Will you bring her, Captain Arlington—please do, and soon? And you must send me word how she is after her adventure."

"You are very kind," Captain Arlington answers; and Lily lifts her sweet face to Maud, who bends down and kisses her with an impulsive manner which is very unusual to the young heiress.

"How beautiful she is, and how sweet!" Lily Arlington says, enthusiastically, as her brother helps her into the house, and Arthur Rochester drives away. "How could Annie Montrose say that she was so proud!"

"Did Miss Montrose say she was proud?" says Gilbert, musingly, as he thinks of the sweet eyes which had met his so shyly—of the soft, low voice which had uttered such tender, gracious words. "How did she know?"

"Oh, they were at school together," answers Lily. "And Annie was always talking of Maud Rochester, saying, how proud she was, and how much she thought of herself. She did not like her at all."

"She has very bad taste," says Gilbert, smiling. "Don't you think so, Lily?"

"Indeed, yes," Lily answers, earnestly. "She is so sweet and kind. Oh, Gilbert, I do not wonder at it. She breaks off suddenly and blushes; but Captain Arlington does not ask her to finish the little speech—perhaps he guesses its purport.

That evening he sends a little note to Miss Rochester, telling her that Lily has sustained no ill effects from her adventure; and Sir Weston thinks his fair young daughter very absent and *distracted* all the evening, and she pleads a headache as an excuse for retiring early.

"You are over-tired, my pet," Sir Weston says, tenderly. "Arthur has let you fatigue yourself to-day."

"Arthur left his heart on the lake," Maud answers gaily. "He fell in love at first sight."

"Did he?" laughs Sir Weston. "Who is the lady?"

"Miss Arlington—such a pretty creature," answers Maud; and Arthur laughs, and colours slightly.

"She must belong to a fascinating family," he says, shyly. "Ask Maud what she thinks of Miss Arlington's brother, Uncle Weston."

But before Sir Weston can ask, Maud turns to her cousin with flashing eyes.

"Captain Arlington is nothing to me but an acquaintance," she says, haughtily. "I think as little of him as he does of me, and I beg you will not make me the subject of your jest."

She sweeps away, leaving Arthur in consternation, and Sir Weston amused at the little outbreak. But when her maid is dismissed that night, Maud Rochester, the proud, beautiful heiress, throws herself on her knees by her bedside, and breaks into a passion of tears.

"I love him!" she sobs, as she hides her burning face in her little hands, "I love him, while he—dispises me!"

For the handwriting in which the note signed "Gilbert Arlington" is written is the same caligraphy which she had studied that morning in the lines from Tennyson's poem which had been sent to her as a valentine; and Maud Rochester has awakened to the fact that she has given her heart away to a man who not only does not love her, but who despises her.

"You sought to prove how I could love,
And my disdain is my reply;
"The lion on your old stone gates
Is not more cold to you than I."

TO BE CONTINUED.

Minnie May's Department.

MY DEAR NIECES,—I propose to talk to you in this letter upon housekeeping, and matters in general. How much easier and less distasteful household duties might be made if they were entered into more heartily. To see a young girl washing dishes, dressing vegetables, sweeping and dusting with the ends of her fingers and disgust marked on every feature, does not give one an agreeable impression of either her temper or good sense. All labor is performed with much better grace with some definite object in view. If you do it for love's sake to lighten the load for a patient mother, or to save the expense of an additional girl to an already over-burdened father—this might make you sing while you work. If you are hurrying through the morning duties to get time to study music, drawing, recreation, or to earn something towards some long-cherished plan—this will give alacrity to your step, and courage to your heart. Remember "an ounce of common sense is worth a bushel of learning." If you will study system, order and punctuality in your household arrangements, you may save much time, strength and worry. As far as possible, certain days should be allotted to certain duties, such as cleaning paint and cupboards, brightening the silver and glass, sorting and mending the linen, etc. A sensible girl will not hesitate to put her hands to anything that may be needed, yet she is right in trying to preserve her beauty and neatness. A little Indian or oatmeal rubbed upon the hands when washing will do much towards keeping them nice. Farmers girls are expected to understand housekeeping; study grace and beauty in the folds of a curtain, the arrangement of a table, the position of a chair; take the prettiest way of doing things, and you will soon discover a charm in it, and the effect on your own natures will be ennobling. Do not begrudge five minutes to trim a dish with green leaves upon the dinner table; as well have your own person tidy and tastefully dressed; somebody's eyes will brighten to see it, and ere you are aware, you will become "a trap to catch a sunbeam."

MINNIE MAY.

Answers to Inquirers.

A SUBSCRIBER.—I badly greased a silk dress; how can I remove the spot? Ans.—Apply some finely powdered magnesia to the wrong side of the silk. If the grease spot is fresh it will soon disappear; if it is old, lay a piece of brown paper on the magnesia and a warm sad iron (red hot) on the paper; repeat in ten minutes with fresh magnesia if necessary.

FANNIE asks questions about introductions, such as when introducing two ladies, which should be named first. Ans.—If one is a married lady, the young lady should be introduced to her. The inferior to the superior always. Even if it is only that one is older than the other, but ladies are not usually particular about enforcing superiority of age. What should a lady say to a gentleman when he asks can he accompany her home, if she accepts? Ans.—You may say "thank you, I shall be very happy," or merely bow pleasantly, saying "thank you."

JENNIE.—Is it proper when at a tea-table to get through eating and leave before the rest? 2nd.—Is it proper to have a pie for tea, and should it be eaten with the fork? Ans.—No; you must wait

for the others, of course, unless you are obliged to leave for any proper reason, when you may ask to be excused. 2nd.—Yes, it is quite proper to have pie, and it should be eaten with the fork only, unless it is so tough that you can't cut it without the aid of your knife, and in that case it would probably be best not to eat it at all.

T. T. F.—Is it etiquette for a guest to fold his napkin after a meal before leaving the table? Ans.—No; as that would seem to indicate that it might be used again before being laundried, and if the guest is only partaking of one meal in the house, it would appear that he expected some one else to use his napkin, a supposition not very flattering to his hostess. When one is remaining in a house for any length of time he is, of course, provided with a napkin ring, and will fold his napkin neatly, and place in the ring after each meal.

R. S.—Your writing is so bad as to be scarcely legible. You should not be in a hurry to return, as your visits may become obnoxious. You may be invited soon.

RECIPES.

SNOW PUDDING.

Soak one half a paper of gelatine in just enough water to cover it; add one pint of boiling water, two cups of sugar, and juice of a lemon; strain it after it is thoroughly cooled, so it commences to thicken; add the beaten whites of three eggs; beat all together until creamy, then turn into a mold. The same is made with a pint of milk and the yolks of the eggs; sugar to taste, and flavor; this makes a thick custard.

POTTED CHICKEN.

This is an agreeable relish, and makes a pleasant luncheon when travelling. Take a roast fowl and carve off all the meat. Take two slices of cold ham and chop it with the chicken; add to this one-quarter pound of the best butter; add salt and pepper to taste; now pound this all together to a paste; put the mixture in a jam-pot; cover closely. It will keep in a cool place 10 days, or long enough for any moderate journey.

STUFFED POTATOES.

Take large, fair potatoes; bake until soft, and cut a round piece off the top of each; scrape out the inside carefully, so as not to break the skin, and set aside the empty cases with the covers; mash the inside very smoothly, working into it while hot some butter and cream, about half a teaspoonful of each for every potato; season with salt and pepper, with a good pinch of grated cheese for each; work it very soft with milk, and put into a saucepan to heat, stirring to prevent burning; when scalding hot, stir in one well-beaten egg for six large potatoes; boil up once; fill the skins with the mixture, replacing the caps; return them to the oven for three minutes; arrange upon a napkin in a deep dish, the caps uppermost; cover with a fold of the napkin, and eat hot; or you may omit the eggs and use a double quantity of cheese.

TO RESTORE SCRATCHED FURNITURE.

Scrape one pound of beeswax into shavings in a pan; add half a gallon spirits of turpentine and one pint linseed oil. Let it remain twelve hours, then stir it well with a stick, into a liquid; while stirring add one quarter of a pound of shellac varnish and one ounce of alkanet root. Put this mixture into a gallon jar and stand it before the fire or in an oven, for a week, (to keep it just warm), shake it up three or four times a day. Then strain it through a hair sieve and bottle it. Pour about a tablespoonful on a wad of baize, go lightly over the face and other parts of mahogany furniture, then rub briskly with a similar dry wad, and in three minutes it will produce a dark brilliant polish unequalled. Another preparation may be made as follows: Make a mixture of three parts linseed oil and one part spirits of turpentine. It not only covers the disfigured surface, but restores wood to its original color, and leaves a lustre upon the surface. Put on with a woolen cloth, and when dry rub with woolen.

At a meeting of clergymen not long since, a reverend gentleman by the name of Loss, of dimensions somewhat extended, laterally and altitudinally, presented himself. Says one of the brethren to him, "When you left your people, you were a great Loss." "Yes," said another, "when he dies he will be no Loss." "Nay," said a third, "he will be a dead Loss."

Robin Red-Breast.

Cold the wintry blast is blowing,
Keenly drives the sleet and rain,
And there comes a feeble tapping
At the frosted window pane.
Who is it that to the casement
For admission shyly comes?
As I live, 'tis Robin Red-Breast,
Starved, and seeking after crumbs!

You shall have them, pretty Robin!
All your troubles now are o'er;
Hop in freely! Don't be frightened—
Range at will about the floor.
You are hungry now, sweet Robin,
And can very friendly be;
But when summer brings you plenty,
You will scarcely look at me.

Yet I will not chide thee, Robin,
I have tried the world and know
That humanity is like thee,
As the seasons come and go.
Lovers are like thee, sweet Robin,
When 'tis winter in the heart—
When our love dispels that winter,
Like thee, Robin they depart.

Don't Boil Your Milk.

The animal albumen which milk contains, and by which the nerves in the human body are made, is hardened and destroyed by boiling. In milk used by children whose systems are being built up and formed, this is of vital importance, but it is to be seriously considered by adults whose nerves are repaired and strengthened by this albumen or nerve food. The above applies also to eggs and to all food. The French, who rarely suffer from disorders of the stomach, never boil their food. Their cooks are taught to cook slowly and gently, so that their dishes are tender, nutritious, and easy of digestion. I am quite aware of the tendency of milk to hold and even promote the growth of germs, as well as of the typhoid fever some few years ago in Marylebone and Paddington, and of the source to which it was attributed; nevertheless, except under extraordinary circumstances and for a short time only, do not boil your milk.—[English Agl. Gazette.]

Longfellow and the Pumpkin.

There is a lady living in a little four-roomed cottage in the environs of Boston whose name is well known to literary people. She depends wholly upon her own exertions for the support of herself and children, and does all her own housework, yet her cottage is the focus of the best society of the locality. A gentleman calling there recently was received at the door by a daughter of the lady, who told him her mother was too busy to be called, but that he could see her in the kitchen if he pleased; and he followed her to that room. The lady greeted him without the least embarrassment, though she had on a big apron and her sleeves were pinned back to her shoulders. She was cutting a pumpkin into stripes for pies; and there sat a venerable gentleman gravely paring the strips to the accompaniment of brilliant conversation. I was asked to guess who this gentleman was, and after several fruitless attempts, was told that it was the poet Longfellow. While the pumpkin-paring was in process, another distinguished poet called, and he, also, insisted upon being impressed into the service. It was a dreary day outside, and no one cared to leave the pleasant cottage, so they all stayed to lunch, one of the pies forming the *piece de resistance* of the occasion.

Speaking of this incident afterward, the lady said: "My friends are kind enough to come to see me, though they know I cannot leave my work to entertain them. Visiting and work must proceed together, and when I set my callers at work with me we are sure to have an agreeable time."

To be sure, some would say this is not society, understanding by the term pretentious drawing-rooms and elaborate entertainments; but if that be not society, where men and women of solid culture meet and hold "high talk," where wit, humor, and good-fellowship create a bracing, elevating, moral atmosphere,—if that be not society, we had better invest the term with nobler meaning.

Pots containing flowers should be washed as often as any mould or fungus growth appears.

Poetry.

To the Farmer's Advocate.

Oh, now you see its myself that can say
I've been reading your paper this many a day,
About cheese and butter, and cattle and hogs;
Of drain-tiles and ditches, in dry land and bogs;
Of horses with lampas and cracked hoofs and a';
Of British Columbia and Manitoba.

I've looked through your columns and never could find
A word from this district that's just to my mind.
It's four year last September since first I began
To hew out a house by the Wagnetawan,
And I'm getting on fine, though I say it myself,
And I like both the land and the climate full well.

We can grow fine potatoes, wheat, too, and corn,
And cabbage—oh, thunder! as big as a barn;
And peas, beans and buckwheat and oats, too, galore.
If you saw our big pumpkins, you'd set to and roar.
Sure, the hay crop beats any I ever did see;
And tomato plants grow as big as a tree.

You'll be saying I am blowing and talking too loud,
But I'll send you some samples of which I am proud.
Folks say that this line is a frost smitten spot,
That wheat won't grow and potatoes will rot.
But if you'll have patience and listen to me,
I'll explain the conundrum as plain as can be.

There's a lot of galouts—nothing more can I call them—
Who come to this district from far distant climes;
Some come from the city—for them more's the pity;
While others have come because of their crimes.

They come here, you see, with high expectations
Of what they will do when they get on the farm;
But tradesmen, you see, can't farm to a T,
And they find that their notions don't work like a charm.

For they plant and sow far too late in the season,
And then don't half cover or harrow it in.
Then, of course, in the fall the frost spoils it all;
And when we are reaping their crops are quite green.

Now if these men would only subscribe to your paper,
They'd learn from its columns the way how to farm;
And they'd learn when to sow, and the right time to mow,
While they'd say that your precepts all work like a charm.

BUSHWACKER

A Couple of Magpies.

From the Boston Transcript.

I rode in a horse-car the other day
With some girls who ran on in this sort of a way:
"Good heavens! what a stranger you are.
I'm awfully glad you took this car.
I'm going down town for a little spree.
Where are you going? Can't you come with me?"

"No; I just came out for a bit of a lark,
And a little shopping; but keep it dark.
I've been so busy I'm almost dead,
And I've a million things to do," she said.

"It's horrid walking, but it's warm as spring;
I think it's too lively for anything;
But the days are so short it will soon be dark."
And her friend replied, "I should so remark."
"I wish you'd join our Sunday-school mission;
It is in a flourishing condition:
We have more than forty nice little girls,
And one of them has the loveliest curls.
One of my friends has a class of boys;
I don't like them—they make two much noise;
I suppose their heathen minds must be fed,
But sometimes its enough to turn one's head."

"Have you seen Salvani? Oh, you ought to go;
He's perfectly splendid—you'd like him, I know;
Did you see Bernhardt? "Yes, I saw her twice;
I think her costumes were awfully nice."

"Your sack is lovely—such a pretty make—
I really think it takes the cake;
And your hat is just the 1-1-loveliest style."
And the other only answered, "Well, I should smile."

"Mr. Thompson presents his compliments to
Mr. Simpson and begs to request that he will
keep his piggis from trespassing on his grounds."
"Mr. Simpson presents his compliments to Mr.
Thompson, and begs to suggest that in the future
he will not spell piggis with two gees." "Mr.
Thompson's respects to Mr. Simpson, and will
feel obliged if he will add the letter E to the last
word in the note just received, so as to represent
Mr. Simpson and lady." "Mr. Simpson returns
Mr. Thompson's letter unopened, the impertinence
it contains being only equalled by its vulgarity."

Miscellaneous.

Acknowledgments.

We are in receipt of the Reports of the Ontario Agricultural Commission. There are six published, also an index; the whole complete will make quite a library for many farmers. It will take a long time to read the whole of them. There is undoubtedly a great deal of valuable information contained in this work. From time to time as the evidence was taken we have given you the cream of it months in advance of the reports. Should any further points in them appear of advantage to our readers we shall avail ourselves of this great Government expenditure.

From Washington we receive the official reports of agriculture; one in book and one in pamphlet form. This work is neatly bound, and contains a great deal of valuable information about crops and the diseases of farm animals.

Catalogues of numerous seedsmen are received. The contents of any that contain any special subject that we think deserves prominence will be duly reported. The catalogue of McBroom & Woodward, London, Ont., is, we think, the neatest that we have ever seen produced in Ontario.

Mr. Philip McKenzie, of this city, brought us a sample of wheat sent to him by Mr. Angus Shore, of Aumsville, Oregon, U. S. This wheat, we think, is the finest we have ever seen, and we have examined the wheat at the great Exhibitions in Paris and Philadelphia. Any person can see it in our office. It is quite a wonder.

New Brunswick Farmers' Association.

The fifth annual meeting of the New Brunswick Farmers' Association took place at Sackville, N. B., Feb. 2nd, 3rd and 4th. The attendance was good, and the meeting a very interesting one. Mr. Peters, the President, read the opening address, which was in substance much like the Hon. Mr. Wedderburn's, a synopsis of which we gave in our last issue, among the proceedings of the New Brunswick Board of Agriculture. Mr. Peters fully agreed with Mr. Wedderburn's remarks regarding agricultural education, and spoke at length of the necessity of introducing agriculture into their public and other schools. He considered children should be educated for the calling in life which they intended to follow. In speaking of the capabilities of the soil, he said they could produce coarse grain and roots in abundance; the average yield of the wheat crop this year was 20 bushels per acre. He fully endorsed the action of the Government in establishing a Provincial Board of Agriculture, and stated it had been done in accordance with the previously expressed wish of this Association.

After this address, the Secretary's report was read. The Treasurer reported the state of the finances, showing receipts of the year to be \$2,732; expenditure, \$2,354.

The report of the committee in connection with the establishment of a model farm and school of agriculture was then brought in, and showed that the universal sentiment was in favor of such an institution.

The election of officers for the ensuing year then took place, Mr. Howard Trueman being elected President; O. C. Arnold, Secretary. Thirteen Vice-Presidents were elected, and a Board of Executors, representing various counties.

The remainder of the time was taken up with the reports from the various county societies, and discussions and essays on various agricultural topics.

The papers read and discussions following were of a very practical nature, and must be productive of great good to all present and the Province at large.

After discussing the various breeds of cattle, it was

Resolved—That, in the opinion of this Association, the discussion on the breeds of cattle best suited to the wants of these Provinces is in favor of Shorthorns; Ayrshires and Polled Angus were favorably recommended.

The Association decided to meet next year at Hopewell, Albert County.

Ontario Poultry Association.

The attendance at the exhibition at Brantford, on Feb. 10th, was said to have been very good, breeders from all parts of Ontario and Quebec being present. Visitors spoke highly of the exhibition. The annual meeting was held in the Kerby House. E. Kester, President, occupied the chair; the minutes of the last meeting were approved of. Brantford was unanimously chosen as the place for the next exhibition. The following were elected officers for the coming year: E. Kester, Brantford, re-elected president; A. Boyne, London, 1st vice-president; J. McLellan, Peterboro, 2nd vice-president. A full board of directors was also elected.

RESISTANCE TO THE COLLECTION OF COUNTY TAXES.—The Township of Lowe in the Gatineau District, Province of Quebec, has been settled by principally Irish emigrants, who a few years ago obtained free land until a municipality was formed. They paid, under protest, the municipal taxes for a number of years. They willingly performed statute labor, but refused to pay the money annually demanded by the Treasurer of the County. Three years ago action was taken by the County Solicitor on their refusing to pay. In June, 1878, a judgment was given against the township for \$94, amount of debt and costs. The necessary legal documents were served, and no attention being paid to them, the Deputy-Sheriff was deputed to execute the writs and make the seizures. The defaulters resisted, and gave him a very short time to leave the township. Finally the Judge of the Circuit Court, on being applied to, granted the application for the necessary assistance, and the Wakefield Infantry Company has been deputed for service.

* There is as much nutrition in a bushel of beans as in four bushels of potatoes.

The cattle on the Cheyenne river, Dakota, are dying in great numbers from starvation. The snow is from eighteen inches to two feet deep, and the herds cannot reach the grass.

Among the exports from Portland to Glasgow, via Halifax, Feb'y 17th, were 2,500 sacks of flour by Mr. Saunby, of London, Ont., and 3,000 sacks by Messrs. Hunt Bros.

Muck is cooling to the soil in summer and warming in winter; it collects moisture and retains it; it aerates the earth, is a reservoir of ammonia and other elements of plant-food, not the least of which are its crumbling shells and fragments of petrifications.

REMEDY AGAINST WORMS IN APPLES.—There is no remedy against the worms in apples but to catch and kill the parent moths. This may be done by keeping bands of thick paper, straw, or coarse carpet around the trees; the worms hide under these, and can be caught and killed. To bore holes in the trees and fill them with sulphur will be of no avail whatever.

"SCOURS" IN A COW.—Diarrhea is caused by irritative matter in the bowels. This is not removed by astringents, and to give them only increases the trouble. A laxative is needed to remove the offending matter, which is usually some undigested food. Give a pint of linseed-oil, which is better at this season than salts, and repeat it, if necessary, in three days. Give an ounce of ginger with the oil, and when the oil has operated give a dram of ginger and a dram of carbonate of soda daily in the food for a few days.

The healthy properties of onions have never been fully understood. Lung and liver complaints are certainly benefited, often cured, by a free consumption of onions, cooked raw. Colds yield to them like magic. Don't be afraid of them. Taken at night, all offense will be gone in the morning, and the good effects will amply compensate for the trifling annoyance. Taken regularly, they promote the health of the lungs and the digestive organs. An extract made by boiling down the juice of onions to a syrup and taken as a medicine answers the purpose very well; but fried, roasted or boiled onions are better. Onions are a very cheap medicine, within everybody's reach, and they are not by any means as "bad to take" as the costly nostrums a neglect of their use may necessitate.

Home Decoration.

The time has now arrived when many of our readers can afford to decorate their homes. The beautifully attractive residences we have seen contrast so strongly with the bare cheerless-looking houses of those who have no taste for improvement and beauty, that we would strongly advise our readers who can afford it to expend a trifle on beautifying their residences; and thousands of you can well afford to give your wife or a daughter some little present. We know every one of them will love and respect you more; you will love your home better; your friends will think more of you and your homes, and the ladies will be delighted to look after and protect any little present you may make them. We here commend to you the Virginia Creeper, which is the cheapest, hardiest and best climber that any cottage can afford. It should be seen on the grounds of the richest and poorest. There is on every farm a garden or some place, you wish to shade or beautify. Every one of our subscribers can have one of these plants sent, post paid, to any part of the Dominion free of cost, by the slight exertion of sending one, new paid subscriber to the *ADVOCATE*. From one plant sent this year you would, in two years, be able to supply your neighbours with plants, as they are easily perfected. The beauty of this plant consists in its unequalled dense, dark green and luxuriant foliage; the flower is of no consequence. It will thrive admirably in the most northern as well as the most southern part of the Dominion that we have visited. The Virginia Creeper we purpose sending is the self-climber; it will soon run over the side of the house if allowed its own way.

But to the ladies who wish for a beautiful flower, one that they can never cease from admiring, we must commend the Clematis Jackmanni. Many of the farmers in the country have never seen it, but those who have will agree with us in calling it perfectly charming. It is comelier, of much less vigorous growth and more delicate in its foliage and nature than the Virginia Creeper. We have seen it growing in many places, and can not commend it too highly to the ladies. They are more expensive, and require more care, but the flower amply repays all the labour bestowed on it. We quote the following

description from the catalogue of Ellwanger & Barry, Mount Hope Nurseries, Rochester, N. Y., from whom plants can be procured. Their reputation as nurserymen is unsurpassed, and their catalogues are replete with information. They state:—

"The Clematis are elegant, slender branched shrubs, of rapid growth, handsome foliage and beautiful large flowers of all colors. The newer varieties introduced within the last ten years are great acquisitions. Either in the open ground as pillar plants, bedding plants, single plants in masses or about rock-work, or cultivated in pots or tubs, the Clematis cannot be excelled.

We append the following from the English "Gardener." Jackman's Clematises:—"They are magnificent; and more than this, they give us some of the grandest things in the way of creepers the horticultural world has ever seen, making glorious ornaments either for walls, verandas, or rustic poles or pillars, varying in color from deep rich violet hue to dark velvety maroon, and in the newer seedling forms, beautiful shades of pale bright blue."

They will stand the severest winters if the roots are slightly covered.

Another excellent authority says:—

"The Clematis are elegant, slender, branching vines of rapid growth, handsome foliage and beautiful flowers of all colors. Either in the open ground, as pillar plants, bedding plants, single plants, in masses or about rock work, or cultivated in pots or tubs, the Clematis cannot be excelled." In brief, for delicacy, grace and refined beauty, there is nothing that approaches the improved varieties of this plant."

We will send one plant by post, prepaid, to any subscriber who will send two new paid subscribers.

Sunlit Rooms.

No article of furniture should be put in a room that will not stand sunlight, for every room in a dwelling should have the windows so arranged that some time during the day a flood of sunlight will force itself into the apartment. The importance of admitting the light of the sun freely to all parts of our dwelling cannot be too highly esteemed. Indeed, perfect health is nearly as much dependent on pure sunlight as it is on pure air. Sunlight should never be excluded except when so bright as to be uncomfortable to the eyes. And walks should be in bright sunlight, so that the eyes are protected by veil or parasol when inconveniently intense. A sun bath is of more importance in preserving a healthful condition of the body than is generally understood. A sun bath

to think it was worth it. This same dish is a very common one in the city restaurants, and young business men frequently take it as a noon-day lunch and ask for it at their homes. This being true, it ought not to be despised in country homes, and it would not be if well made. The secret is to cook it thoroughly, not to make a hasty pudding of it. Mix the corn meal with water very thin and boil it down, giving full two hours for the meal to soften and swell and for the starch grains to burst. Salt it sufficiently while cooking. Do not let it burn, but boil gently over a gentle fire or on the stove, with the cover on. It may be eaten with maple syrup, sugar, milk or cream, plain or sweetened.

Children's Dress.

No child is prettier for an elaborate design of dress. A single ruffle at the edge of a skirt does very well, but it is quite as well without it. And to cut up the tiny space of a child's dress with loopings and trimmings and ornament seems to us to make them look like monkeys. Not even the sash is beautiful for a child. A child is constructed first of all to eat that it may grow, to receive impression that it may learn: therefore the head and the stomach are large in proportion to the rest of the body. When the little figure is nude so that the soft fleshy forms can be well seen, all this is beautiful; but to emphasize in the draped form of the child the large stomach by a broad sash, is utterly against all rules of beauty.

The legs and arms are often beautiful, but to show the legs by cutting off the dress at the hips is immensely awkward and seems chiefly to serve to display the drawers, which are not a beautiful garment, and should be entirely hidden. Besides this, in winter our climate is wholly inappropriate for any such exposure, and we shall best see the beauty of a healthy child in its easy, untrammelled motion as it moves about in a simple dress, (of as handsome a material as you like, provided that it is untrimmed) which is long enough to be warm and loose enough to be comfortable. If you want your children to be graceful, let them be unconscious; if you want them to be healthy, let them be sufficiently warm. No woman can have a fine complexion who as a child has been habitually chilled, and we see in the winter many children who seem literally to have nothing on from the waist up, the lungs and heart being at less expense to warm the upper portion of the body than the legs, which are further away from them. — [Harper's Magazine.

Old People.

A gentleman who was showing me a literary paper which he had written in a very clear, bold hand, remarked: "I always write very distinctly that I may have no difficulty in reading my manuscripts when old age comes upon me." He was then bordering on 70. Another very vigorous old gentleman, aged 77, who was at the head of a large publishing establishment, was explaining to a friend the enormous amount of work he went through from day to day. His friend remarked that it must tell upon him seriously at that age. "O no," he replied, "I don't feel it now, but I expect I shall in after life!" I cannot vouch for the truth of the following anecdotes, but they may serve to "point a moral and adorn a tale:" In the old coaching days, when a coach stopped on one occasion to change horses, one of the passengers strolled along a green lane, and was surprised to see an old man sitting under the hedge crying. In answer to a question as to the cause of his grief, he replied that his father had been beating him. The passenger, who thought the father of an old man like that must be a curiosity worth seeing, asked him to take him to his father. The old man led him to a cottage where a very old man was standing at the gate, looking very angry. "Is this your son?" he asked. "Yes," replied the old man gruffly. "He tells me you have been beating him," said the passenger. "Yes; and he deserves beating, the young rascal, for he has been throwing stones at his grandfather!" — [Chambers's Journal.



FLOWER OF CLEMATIS JACKMANNI.

costs nothing, and that is a misfortune, for people are deluded with the idea that those things only can be good or useful which cost money. But remember that pure water, fresh air and sunlit homes, kept free from dampness, will secure you from many heavy bills of the doctors, and give you health and vigor which no money can procure. It is a well established fact that the people who live much in the sun are usually stronger and more healthy than those whose occupations deprive them of sunlight. And certainly there is nothing strange in the result, since the same law applies with equal force to nearly every animate thing in nature. It is quite easy to arrange an isolated dwelling so that every room may be flooded with sunlight some time in the day, and it is possible that many town houses could be so built as to admit more light than they now receive. — [Builder and Woodworker.

CORN MUSH.—When I was once in one of the grand hotels in the city of New York, I was very much surprised to hear a venerable old gentleman ask for some corn mush and milk and to see him dine with a perfectly satisfied air on this common dish, while on every table around him there was the most luxurious profusion. That mush and milk cost him one dollar and a half, and he seemed

Plows.

When visiting a plowing match in England nearly fifty years ago, we distinctly remember noticing the plowmen with their best smock frocks, as they were called, a kind of long, very thick and durable overcoat, covered with a great deal of any plaiting. The long whips in the hands of the plow-boys, which they would crack, making a report the echo of which might be heard repeating itself. The horses—oh, what monsters they appeared in our eyes—fat, sleek, powerful Clydes, decorated with showy brass mounted harness; red, white and blue ribbons decorating the manes and tails of the animals; and last but not least, the rows of tinkling bells hanging under a fringed canopy, placed on the saddle. The horses appeared to enjoy it, and feel as proud as the teamsters. The field was staked out with painted poles with ribbons on the top; all the teams were placed in position, about twenty or more; the word of command was given, and all started simultaneously. What a sight! Each team consisted of the best horses that could be raised. No poor farmer, or poor plowman, or poor team would be there. The prizes were not only

welded together, in the form you see in the cut; this gives a much greater strength to the beam than can be obtained by four times the weight of iron contained in one solid bar. Most of you have seen the truss bridges, and can compare the lightness of them with the old wooden, iron or stone bridges. You see they are strong and light. This plow's beam is on a swivel on the plow. The beam can be raised or lowered, turned to the right or left at will, thus regulating the depth or width of cut by a slight alteration in the attachment of beam to the handles, so that it obviates the necessity of a heavy and cumbersome lot of attachments, in the form of clevises. The mould-board is made of the best chilled metal. This plow is not a Canadian invention, but is made after the pattern of one of the leading implements in the States. This plow is claimed to be adapted for all kinds of soil in Canada, except the prairies of the Northwest. Mr. Cockshutt manufactures several agricultural implements, among which is his Western Corn Cultivator, by the use of which a much larger extent of corn can be cultivated by one man than could be done by two men with the common culti-

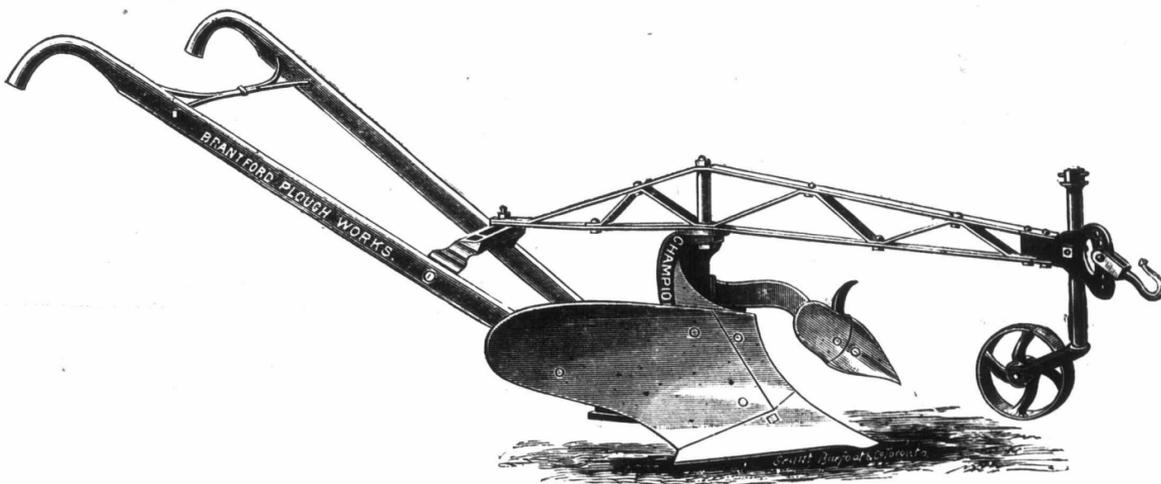
Red Clover.

BY J. B. LAWES, F. R. S., L. L. D.

If gypsum acted as a medium for obtaining ammonia from the atmosphere, it ought to be a better manure for the cereal crops than for clover. Such, however, is not the case.

I am disposed to think that the action of gypsum is due to its supplying both sulphur and lime to the crop; and that it may also liberate and make more available some of the organic compounds of the soil. It has been proved that the leaves of clover contain a large amount of sulphur, which sulphur is burnt away, and not found in the sulphate of the ash. In a soil rich in decayed vegetable matter, all the important ingredients taken up by clover may be in excess, as compared with sulphur and lime; in such a case the application of gypsum may produce the wonderful results we read of in the United States. A few years ago when the agriculture of the States was in a distressed condition, I came upon a remark, made by a farmer in one of the journals devoted to agriculture, to the effect that farming was generally prosperous where gypsum produced good crops of clover! The soils upon which the gypsum produced such good results must either have been naturally very fertile or there must have been large reserves of fertility stored up in them.

The want of special knowledge, with regard to the food available for the clover plant in the various soils in this country, makes the success or non-



"THE NEW CHAMPION" PLOW, MANUFACTURED BY J. G. COCKSHUTT, BRANTFORD, ONTARIO.

awarded for the work done, but special prizes were given for various things: such as the plow, the team, and the plowman. They would have to be examined, and it took good men to judge. The whole affair was carried on openly; no favoritism could be shown. Even the plow-boys would know if the slightest error in judgment was made. We never expect to see a finer exhibition. We particularly admired the long, gradually-turning sod; we admired the appearance of the land after it was plowed; and particularly remember the plowmen taking out the mould-board every time at the end of the land. The mould-boards then consisted of a piece of wood. These old-fashioned plows have long since been superseded by the beautifully turned long Scotch and English plows, with iron beams and steel mould-boards. The Americans have now simplified the construction of the plow to such an extent that a farmer of the 17th century would hardly know what the present implements would be used for. The chilled iron plows are now known to all our readers. The latest improvement appears to be the swivel truss beamed plow. This plow is introduced into Canada by Mr. J. G. Cockshutt, of Brantford, Ont.; the name given to it is "The New Champion." The illustration shows you the new form of beam; the truss principle is introduced here: three flat pieces of wrought iron are

vator. We have no doubt but he would send you his illustrated catalogue if you write to him for it.

Clover on Meadows.

Many farmers in this vicinity have meadows entirely seeded with timothy, and on inquiring I find their yield was but little over half as much as those seeded with both timothy and red clover. When the hay was taken off, the meadow looked brown and bare, while those seeded with clover at once put on a lively green. My experience proves that where the two are mixed the timothy is fine and the hay is easily handled, while timothy alone grows coarse and stiff and is hard to pitch. Meadows seeded with both grasses improve from year to year, while those seeded with timothy alone soon become sod bound and have to be plowed up. If the timothy is cut after the seed begins to fall the meadow is worthless for fall pasture.

Again, pastures are seeded down with red clover and timothy, and after they are well set nature is left to take its course. In three or four years the red clover has died out and white clover and blue grass take its place. A pasture should be well seeded with clover every other year, sown without being hulled if possible. The hull holds the moisture and helps it to germinate. It can be sown any time in the winter, but it is better sown on a light snow in March. Farmers should look into this clover business closer.—[Prairie Farmer.

success of an application of gypsum a mere matter of speculation; and while I fully appreciate the value of red clover as an agricultural crop, I am disposed to think that it has obtained credit for certain qualities to which it can lay no just claim.

I find that an immense quantity of nitrogen has been abstracted from the soil. I also know that the red clover does consume a large quantity; indeed, the fact is admitted by the plant, but at the same time it protests that not one particle was taken from the soil; asserts that the whole was taken from the atmosphere.

The nitrogen is gone, and no other plant has had access to it but the red clover! Possibly it may have been wrong to expose the plant to temptation in the form of a large store of its favorite food; but I must say in justification, that it absolutely refuses to remain in my service under other conditions.

When the snow banks around the fruit trees, or any small ornamental trees, evergreens not excepted, tramp it down tightly to prevent the mice from working under the snow.

Sketch a plan of the garden ground to be planted with all the rows marked out and the name of each kind of vegetable to be planted written down in the appropriate places. This will facilitate spring work astonishingly; with such a map the varieties and quantities of seed required can be selected with more care and satisfaction, and may be procured early enough to avoid disappointment. All seed should be tested before you plant it.

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—I hope you have all survived the extreme cold weather of the last month, and still retain the usual number of toes, fingers and ears. I have received an unusual number of letters this month, speaking in such flattering terms of the *ADVOCATE*; which you must know is very gratifying to us; also from many who have answered some or all of the puzzles. Now, I want all my nephews and nieces, who can make out the puzzles, to send them in, and I will give the one under fifteen who answers all correctly from now to next December the *ADVOCATE* free for 1882, and to the one who writes the nicest letters I will give the same. Now, who is going to win? How did you fare in regard to valentines this year? I believe there were not nearly as many sent as usual. The custom seems to be dying out. I think it is a pity; for it is a harmless one, and productive of much amusement. St. Patrick's day will soon be here. I suppose all my loyal Irish friends will rejoice. Well, you may be proud of him; for according to tradition, he was a "gentleman, and came of decent people." UNCLE TOM.

Puzzles.

108—PUZZLE BIRDS.

Each of the following stanzas is to be completed by adding, at end of the fourth line, the name of the bird described in the preceding three lines. The stars show the number of letters in the name which must rhyme with the second line.

- Now soaring high, while gazing at the sun,
Now perched upon some cliff, with aspect regal,
Far, far above the range of hunter's gun,
What bird is that? The *****
- A Bible tale oft runneth in my head,—
For on my memory it is deep engraven,
'Tis of a prophet who by birds were fed,
What bird is that? The*****
- Wise birds are they who "to the moon complain"
Of wolves and foxes which by night do prow,
Yet rats and mice flee from this bird in vain.
What bird is this? The***
- Black vest, white coat, and collar buff or yellow!
What bird is this, dear children, can you think?
His song is cheery, bright and gay, but mellow.
This is the *****
- What bird so loved, we could not do without him?
To build his nest, he seizes cord or bobbin.
With whistling notes he fills the air about him.
You can't mistake the*****
—St. Nicholas.

109—ENIGMA.

First in sieve, not pail.
Second in rum, not in ale.
Third in calf, not in ox.
Forth in cat, not in fox.
Fifth in rude, not in kind.
Sixth in brain, not in mind.
Seventh in wheat, not in hay.
The whole a savage bird of prey.

OSCAR.

110—CHARADE.

My first is a cooking utensil; my second is a species of tree; my whole is used in making soap.

111—HIDDEN ANIMALS.

- "Oh, how I should like to marry a king,"
The tiny young maiden did sweetly sing.

- It was a bleat, and a lamb's bleat, too;
Indeed, dear sir, my words are true.
- Said the lover, "Mine, oh, be;
Fair maid, I love none but thee."
- "Oh, now, Eliza, take a peep
At baby as he lies asleep."

Answers to Feb. Puzzles.

104—Chicago.

105—Moscow.

106—

B	A	L	E	M	A	L	T
A	P	E	S	A	R	E	A
L	E	A	D	L	E	A	R
E	S	P	Y	T	A	R	T

C	A	M	P	I	M	A	G	E
A	R	A	L	M	O	L	A	R
M	A	T	E	A	L	U	T	A
P	L	E	A	G	A	T	E	S
				E	R	A	S	E

BLANKS.

107—1, Pare, pear; 2, Hair, air; 3, All, a"l; 4, Sam, psalm; 5, Him, hymn; 6, Hugh, hew; 7, Men, mean.

Names of Those Who Sent Correct Answers to February Puzzles.

R. Elgin Fowle, Samuel Allan Connell, Richard E Osborne, Jr., Hugh McDougall, Howard Sharman, C Cooper, Freddie O Fiewelling, Robt Wilson, Maggie Ellis, Harry Johnson, Jessie Cowan, Johnny Crawford, A L Moore, Minnie Hill, Edw Bradford, Mary Armstrong, Robt. Thompson, Tom McKay, Ellis A Anderson, Geo G Gunn, Gussie McKenzie, Ida L Miller, A O Lawless, Geo Smith, Willie Willis, Maggie McIntosh, Carrie Wallace, Hugh McDougall. Special credit is due Mary Armstrong, she having answered all the puzzles correctly.

sake of the children (whom we are always pleased to see around) a monkey should cause us not to act too harshly with those that give them amusement. Here you see one seated on a chair like an old man, reading, and the children are taking in the situation.

The Shoe that Fitted.

The minister hit 'em every time,
And when he spoke of fashion,
And riggin' out in bows and things,
As woman's rulin' passion,
And comin' to church to see the styles,
I couldn't help a winkin'
And nudgin' my wife, and says I, "That's you.
And I guess it sot her to thinkin'."

Just then the minister says, says he,
"And now I've come to the fellers,
Who've lost this shower by usin' their friends
As a sort o' moral umbrellas,
Go home," says he, "and find your faults
Instead of huntin' your brother's;
Go home," says he, "and wear the coats
You tried to fit for others."

My wife she nudged, and Brown he winked,
And there was lots o' smilin',
And lots o' lookin' at our pew,

It sot my blood a bilin',
Says I to myself, our minister
Is gettin' a little bitter;
I'll tell him, when meetin's out, that I
Ain't at all that kind of a critter."

Humorous.

OUTRAGE BY A POLICEMAN.—Sam Johnson was up again yesterday. "What brings you here this time?" asked the Recorder. "De pliceman, sah; de same what brung me heah last time." "I mean what did you do?" "I was jess passin' a grocery store, when I struck my head agin a ham what was hangin' by de dore. I tuck the ham down to put it somewhars whar it would be safe from folks bustin' their brains out agin it, when de fust I knewed a pliceman tried to get de ham away from me, and bekaese I wouldn't let de ham go, he jess brung me along, too."

A devout Methodist asked Wesley what he thought as to his marrying a certain woman well known to both. "Why," said the other, "she is a member of your church, isn't she?" "Yes," was the reply "And you think she is truly a Christian woman?" "Yes," said Wesley, "I believe she is." "Well, then, why not marry her?" "Because, my friend, the Lord can live with a great many people that you and I can't."

ENTERTAINMENT IN IRELAND.—Biddy O'Flannigan: "Shure now, Mrs. Driscoll, lave your washin' an' come out. Mr. Maguire, the landlord, has passed, rinnin' away, bedad; Pat, his tinant, has passed, rinnin' after him, goin' to cut his thirty throat; the ba'liffs hvae passed, rinnin' after Pat for the rent, wid revolvers in their hands; the 'Skull Threshers' have passed, rinnin' after the bailiffs to corpse 'em; an' all the darlint boys an' girls are rinnin' after the lot jist to see the fun, be jabers."—[Fun.

The use of baby-carriages is deprecated by Dr. Henry H. Smith, of Philadelphia. He says that a child who is carried in arms is being constantly trained in balancing its head and shoulders, and that such infants are sooner able to sit alone and creep or walk more vigorously than those who in the continued supine posture of the baby-carriage fail to receive their muscular exercise. There is also increased appetite, with improved digestion and nutrition. One of the evils liable to ensue from the constant use of the baby-carriage is the jarring and concussion of the delicate brain and spinal cord of the infant created by bouncing the carriage over gutters or up and down the curbstones. This evil, Dr. Smith contends, is quite as serious to the infant as the concussion of the spine, the result of railroad travel, is to the full-grown man, the nervous system of the child being easily impressed by jars.



112—PICTORIAL RRBUS (Good advice bears repeating.)



Monkeys.

We shall soon see the Italians in our cities, towns and villages with their organs and monkeys. We often seem to pity the poor monkey, when pulled and pushed around with a cord attached to its neck, and then be compelled to clamber up the side of a house and run along the eaves and get into the second story of a building. Many a fall they must have! But the more frequent mode is to let them remain on the ground, and run to the observers and pull their dress and hold out their hats for a copper. Some consider them as a nuisance in the public streets; but we were all boys and girls at one time, and the pleasure it gives the children to see the pranks is not little, and for the

Turpentine Remedy.

An aged physician in Washington, who is retired from practice, a man of extensive learning and high character, says the younger practitioners laugh at him for recommending turpentine as a remedy for diseases of the lungs. He contends that they have nothing better to suggest; indeed, they have no remedy for consumption. He claims that in twenty-seven clear cases of throat disease the use of this remedy under his own direction has restored the several parties to fair health, one of these being his own wife, and another being a man who, from being unable to sit or to lie in a prostrate position, has been for five years doing engineer's work in the Treasury.

The remedy is simple:—Procure at a drug store some white turpentine; take in the mouth a bit the size of a pea; swallow the slowly dissolving substance, and when it is quite soft swallow the lump. The same remedy is excellent for a cold. The medicine is an old one, not at variance, however, with the modern notion of sending patients to pine regions to inhale terebinthine odors.

Warm Feet.

Says Dr. J. H. Hanford in the "Laws of Life": "The question is sometimes asked, 'Who ever knew a woman to have warm feet?' Of course this suggests an extreme view, but it is measurably true that women as a class are the victims of cold extremities. It must be admitted there is a cause for it, and the remedy must consist in the removal of such cause. In addition to the use of tight bands, much of this defective circulation must be dependent on the fit of the boot, most of those worn in civilized society tending to cripple and deform the foot. The boots generally made for women and girls are insufficient for the purpose of protection; they are thin, shammy, ill-shaped and defective in nearly every respect. Such boots are not large enough to be comfortable or allow a circulation that permits the warm, purified blood from the heart to reach the extremities. The number of the boot controls far oftener than the size of the foot. Is this questioned? Let the weight of the stockinged foot be borne on a piece of paper as it must in walking, and a pencil point drawn around to mark the exact size and shape, and then compare this with the sole of the boot. It will generally be found that the outspread foot is one fourth wider than the boot, of course involving the idea of cramped, crippled, deformed and cold feet. This false idea of the necessity of a small hand and foot may depend on the corresponding smallness of the brain."

SUPERSTITIONS OF TURKISH WOMEN.—The Turkish woman is a fanatical conservative. The world in which she lives is unmoved by the practical facts of the nineteenth century which make life a burden to her husband. No Chinaman was ever more impervious to ideas of improvement. She is fiercely intolerant in matters of religious belief. The teachings of the Koran have reached her by word of mouth, and surrounded by a perfect Talmud of tradition, and these teachings shape her view of the outside world. In obedience to them, she commonly hates foreigners with passion. As she passes you on the street she will pray with audible fervor that your eyes may become blind, or that God may curse you.

She is superstitious in the extreme. In sickness she will use the saliva of an old woman who has never been divorced, or will inhale the fetid breath of an odoriferous and saintly dervish, in preference to the choicest prescriptions of an educated physician. She is assured that Satan in person teaches Americans their charms. She will not live an hour bereft of her three-cornered bit of leather which incloses the mystic phrase that is potent to ward off the evil-eye. She distrusts Tuesday as the mother of ill luck, and will not celebrate the birthday anniversaries of her children, nor even record the date, lest some magician use it to cast a spell against the child.—H. O. DWIGHT, in *Harper's Magazine*.

A cow ought to be let dry at least six weeks before calving. It is well known if she is milked up to the time of calving that she will be very deficient as a milker, even though she had formerly been a good one. It prevents improvement of condition, and from a very lean cow there is not much to be expected.

PRIZES!

ADDITIONAL TO THE GRAND LIST OF PRIZES OFFERED IN JAN'Y (See Jan. issue).

If any of you wish to procure either of the highly valuable Prizes, you must send in the names of one or more new subscribers. We do not propose to sell either of prizes offered for cash. The \$1 for the yearly subscription of the new subscriber must accompany the order. The subscriber may be in Canada, England or the States, as many make a present of the paper for one year to their friends.

This entitles the giver to any of the following prizes:

For one new subscriber we send one package of Rooted Berberry Plants.

For two subscribers, one Plant of beautiful Clematis Jackmanni.

Either of these prizes should be worth far more than the cost, even though you present the *Advocate* to a friend. They will be mailed to you, post-paid, to any part of the Dominion.

Half lb. each of Defiance, White Russian or Lost Nation Wheat.

1 lb. of New Zealand, Australian or European Oats (white).

1 lb. of imported Black Tartar and 1 lb. of imported Hopetown Oats, or $\frac{1}{2}$ pint of Webb's Kinver Mammoth Pea, $\frac{1}{2}$ pint of Webb's Perfection Pea.

10 pkt. choice annual flower seeds—your own selection, or 10 pkt. choice vegetable seed.

POTATOES.

1 lb. of Burbank's Seedling or Beauty of Hebron.

Milk as a Medicine.

It seems to be an amiable weakness of human nature to be constantly discovering "cure-alls," panaceas for every description of disease and all sorts of disasters. Among the more powerful drugs, calomel has had its say, when doctors carried it by the pocketful, and prescribed it for all diseases. Now quinine seems quite as popular as calomel ever was. Supplanting these remedies has come a milder class. Not long ago pure bullock's blood, hot from the slaughtered beast, was drunk by ladies of high degree, and then in later days they sat "mid nodings on," in the full blaze of a summer's sun, obscured only by thin sheets of blue glass. The list of these remedies, popular at different times, is too long to be recounted, but milk, health-giving, life-preserving milk, has been growing stronger and stronger in the good opinions of physicians as the years roll by. While it is true that many diseases are greatly alleviated, and often cured, by administering drugs to the patient, yet it is equally true that many people would get well with greater certainty and celerity with only good nursing and proper diet. In all classes of diseases that are followed by great debility, milk is becoming a sovereign remedy. Those enfeebled by severe wounds or long-continued fevers, or those of a typhoid type, are greatly benefited by a diet of milk mixed with a mild stimulant. We have heard of absolute cures by the use of milk in such cases as consumption and Bright's disease. To build up the emaciated form, or hold the spark of life in the frail frame, until the disease has run its course, there is no better nourishment than milk. At the same time it must be remembered that milk does not agree with all persons. It is an absolute poison to some stomachs, and its effect should be tested in small quantities before a regular regimen has been decided upon. To such persons, the addition of a little lime water or liquor to the milk renders it assimilative to the stomach and nourishing to the body. Unlike most popular remedies, the use of milk has grown slowly, and is, therefore, more dependent upon a wise appreciation of its usefulness than a mere fashion of the hour, and its steady growth gives assurance of its permanent use in this respect.

Stock Notes.

Alexander McClintock, of Millersburg, Ky., has imported more than 600 sheep from Canada during the last three months.

Prof. Lawson, of the Nova Scotia Board of Agriculture, recently bought some fine Shorthorn stock for use in Nova Scotia.

PARIS, Feb. 19.—The importation of salted pork, bacon and hams from the United States has been prohibited.

A. A. McArthur, Lobo, Ont., has recently sold to Robert W. McAvay, Kinsall, Ont., a fine Berkshire sow.

T. S. Cooper has removed from Coopersburg, Pa., to Hamilton Co., Ohio. The farm on which he now resides belongs to a citizen of Cincinnati, and is situated ten miles from that city.

Wm. Heron, of Ashburn, Ont., has recently sold to D. Grant, Woodville, the Shorthorn bull calf Canadian Duke of Gloucester; also to James Innis, Sonya, Ont., the bull calf Hamlet.

The marked decline of from fifty to sixty cent in the barrel of pork in Chicago is attributed to a telegram stating that the French Government has laid an embargo on an importation of salted meats from the United States, believed to be the result of shipping meat not more than half cured and unfit to stand the voyage, heat and fermentation rendering it unsound.

It is reported on good authority, that within the last four months of 1880, 1,553 car loads of hay were sent from Canada to the United States, 30 per cent. more than last year. The demand for hay is also increasing in Halifax, N. S., to supply vessels which carry live stock to Europe. At the present time the best quality is \$18 per ton at Halifax.

The farmers and prominent breeders of fine stock in the vicinity of Guelph, Ont., held a meeting on Feb. 19th, for the purpose of organizing a Fat Stock Club. The name given to this association is the Guelph Fat Stock Club; it is to be managed by a board, consisting of a president, 1st and 2nd vice-presidents, secretary, treasurer and fifteen directors. An annual exhibition to be held shortly before Christmas each year. M. Sweetman was elected president; James Miller secretary. This is a very commendable movement and deserves the hearty co-operation of the farmers.

There has recently come by way of Halifax, in the steamer "Nestorian," from Glasgow, G. B., eight very pure and highly bred Angus Fells, also a number of fine bred fowls and 3 collie dogs, all en route for the Sandwich Islands. They proceed from Halifax to Boston, and thence by the overland route to San Francisco, and will again be shipped to Honolulu. They are the property of Mr. Hugh A. Ferguson, who had them in charge, and intends to breed from them on his ranch on the Sandwich Islands. Mr. F. is a grandson of Hugh Watson, to whom belongs the credit of first improving this breed of cattle.

A visit to the Whitfield Farm, Rougemont, P. Q., is the subject of an interesting article in the *Journal of Agriculture*. The visitor, A. R. J. Fast, says:—"We were delighted with the general appearance of the buildings and the careful attention shown by the manager to the valuable herd under his control. A choicer collection of breeding cattle it would be hard to find anywhere, and I do not believe so many choice specimens of the different sorts exist on this continent. One knows not which to admire most: the judgment displayed in selecting the stock, or the liberality displayed in appropriating the services of the males to the general improvement of the herds of the country. The herd comprises fourteen bulls and fifty-six cows of the nine most highly esteemed sorts in Great Britain and America. On returning, Mr. F. exclaimed: 'What a gorgeous start the Whitfield herd would make for a Provincial School of Agriculture!' I was comparing this place with the College at Guelph, which has cost the Ontario Government several hundred thousand dollars, though it has neither such a variety nor such a valuable collection of stock; it has not half the extent of land, and what it has is not nearly so varied in quality. The buildings are not to be compared either with those we have seen."

The Apiary.

A Few Facts About Bees.

BY CHAS. F. DODD, NILE, ONT.

[Half the bees supposed to be dead.]

Without going into the minute details which a thorough naturalist would be curious to master, there are certain facts capable of being put into small compass, with which it is absolutely necessary every bee-keeper should be familiar. These we propose to state in this article.

Bees are of three kinds. Every complete hive or colony contains one queen, a number of drones (the fewer the better), and a multitude of workers; "the more the merrier." The queen is the only perfect female, and lays all the eggs from which all the other bees are produced. The eggs are of two kinds—the one hatches into drones, or male bees, while the other produces, as a general rule, workers. These, however, are simply undeveloped females, and every worker-egg is capable, under special treatment, of developing into a perfect female or queen. The special treatment consists in building what is called a queen cell, a roomy pendant receptacle somewhat resembling a peanut, housing the egg or larva therein, and feeding it with a peculiar sort of substance called "royal jelly." This food has the effect of fully developing the young female, so that she comes upon the stage of life fully qualified to increase and multiply. Instinct impels bees to raise queens when the hive becomes very populous and swarming time is at hand, also when from any cause the colony is deprived of its queen. But, if a hive should lose their queen and raise another at any time when there are no drones, the colony would soon become extinct, for a queen must be fertilized within three weeks from the time she is hatched or she will become a drone-layer, and be of no use whatever. After queens become three years old they are generally superseded if not, they become drone-layers, which will be readily known by finding the drone brood in a worker comb. Every colony should be carefully examined early in the spring, and if any are found queenless, they should be supplied with a fertile queen as soon as possible, and if any contain drone-layers, they should be replaced with a good queen.

SAVE THE COMB.

If you lose any bees during the winter or spring, do not destroy the comb nor make wax of it, but clean out the dead bees, and set the combs away in a dry cool place, where the mice cannot get at them, and they will be found an excellent thing to put bees into, or to build up weak stocks with in the coming season. For while bees are building one pound of comb, they could gather twenty pounds of honey.

I am frequently asked which is the best time to buy bees; to such I would say in the spring, after they are safely wintered, and, if possible, to get Italians, in a movable frame hive. They should be worth about twice as much as they were in the fall, especially after such a very severe winter as we have just witnessed, which has destroyed about one-half the bees throughout the country. But still we feel encouraged, for we expect a large crop of honey this coming season, for a poor season is invariably followed by a good one. From California, where bees have been at work for more than a month, come very encouraging reports.

The French Forestry, from observations made at Senlis and Nancy, have decided that it rains more abundantly in wooded tracts, and that while the leaves and branches give back the water quickly to the air, they prevent rapid evaporation from the ground and are thus favorable to the formation of springs.

The Dominion Farmers' Club.

It is now over one year since we offered to give \$50 toward establishing farmers' clubs in the various provinces of the Dominion. For terms see the November number of FARMERS' ADVOCATE (1879). Up to the present time this money has not been claimed by any club. We are so fully persuaded that farmers would be benefited by forming and attending clubs, that we now withdraw our previous offer (as none have claimed it) and will now expend the \$50 in aiding farmers to organize a Dominion Club, in advertising meetings, printing posters to give notice of meetings, &c. We will reserve enough of the \$50 to pay our expenses to and from the first three places to which we may be wanted to aid in organizing clubs. The invitation to such places must consist of a written request from at least five farmers, who must provide a hall for such meeting.

Commercial.

FARMER'S ADVOCATE OFFICE,
London, Feb. 26, 1881.

The weather still continues cold and steady, with good sleighing. The past month on the whole has been a quiet one for business generally, still trade is healthy, and we do not think there is any real cause for complaint.

WHEAT.

This article still keeps dull with little or nothing doing for export. The disposition of the trade in Great Britain, seems to be, to do a "hand to mouth" business, and see what the result will be.

It is rather surprising to find the supply in sight as large as it really is, for since the close of navigation, the absence of cars to move the crop has been a serious hindrance to business; especially in the West. Along with this we have had a remarkable cold winter, with severe snow storms and blockades to contend with. Yet, notwithstanding these obstacles, we find the visible supply is some 28,000,000 bushels, against 29,000,000 bushels same time last year. The quantity due this month at English ports, added to their former deliveries, seems to be adequate to meet their wants, and they seem to have little apprehension in regard to future supplies.

Holders on this side keep very firm, and there seems to be little disposition to meet the views of buyers. It is estimated that we have still one-third of the crop in farmers' hands. If there is that quantity still back it is in the hands of independent farmers who will be indifferent as to whether they sell now or wait till summer or even next fall.

PEAS.

We hope the severe cold weather we have had this winter will have killed all the bugs. There has been a better demand the past ten days, and a good many have been bought up for export; but holders had to meet shippers to some extent, and had it not been for very reasonable freights they would not have made more than cost, and in some instances not even that. We look for steady prices the balance of the season.

OATMEAL.

There has not been a very great deal done in this article this season from several causes. One is that our oats are not good enough, another cause is there has not been a very great demand across the water, from the fact that the Scotch and Irish oats and potatoes were both good crops last year. A Montreal paper calls the attention of oatmeal millers in Canada and the Western States, and the shippers of oats, to the fact that New Zealand is likely to rival us in the production of oats, and the manufacture of meal, and these of better quality than are at present exported from here

These oats are said to be of magnificent quality and weight, 45 to 49 lbs. per imperial bushel. If Canada wishes to maintain her position in the U. K. markets for this article, we must set about improving the quality of our oats. Change of seed is very essential, and many farmers pay too little attention to this. Farmers must keep pace with the times, and if they would only be alive to their own interest by keeping themselves well posted in everything that would be to their advantage, it would put many a dollar in their pockets. Farmers do not clean their oats as they should do before bringing them to market.

BEEF CATTLE.

The disastrous effects which (if true) the severe weather is having on the cattle throughout the West must tell on the shipments of beef cattle from the States, especially the early shipments.

Intelligence from the ranches on the North Platte river, between the towns on that river and Sydney, Nebraska, and northward for 150 miles from the Nebraska ranges, extending 200 miles along the valley of the Niobrara, and running over into Dakota, from the great grazing ground in North-western and central Colorado, from North-western New Mexico and south-western Kansas indicates great probable losses; while the gravest fears are entertained that the thickly populated pasture lands in Manitoba, Idaho and Oregon may be strewn with carcasses by the time the spring opens. The estimated loss on the various ranges runs all the way from ten to twenty-five per cent.

How true these reports are next spring will tell, and whatever truth there may be in them should not be lost sight of by Canadian stock raisers and feeders. Let those who have stock feeding give them all the attention possible, and make them as good as they can, no matter whether they are for early spring or summer shipment. Even steers that are now running in the yard would well repay the owner for the trouble and expense if he would give them a little meal once per day. The fatter they are the more profit there is to the feeder.

CHEESE.

Keeps very quiet and has not yet climbed up into the seventies, although we have no doubt there are a number of holders and dealers who would like to see it go up there. The fact is, the price was forced too high last fall, and the result was that it has checked the consumption, and also prevented dealers from stocking up, which they usually do in the fall and early winter. However, we think the stocks will be pretty well worked off by next May.

The meeting or convention of Dairymen, recently held at Stratford, was a good one, and some very good points and improvements to dairymen was brought about. Oleomargarine received a pretty rough handling from some of the speakers. The nature and kind of material used in making this article was pretty well illustrated by the Hon. Harris Lewis, and also from an article that was read by the Secretary from the February number of the FARMER'S ADVOCATE. The manufacture of this stuff cannot be too strongly denounced, although those who make strictly fine or gill edge butter need have nothing to fear.

The making of skim milk cheese in connection with the butter factories or creameries was also discussed and condemned. Creamery butter is something that cannot be too strongly advocated. We cannot help thinking that the manufacturer of this class of butter, with a view to meet the wants of the local trade, would meet with good support, and might be the means of working up a large home trade for really fine butter, and that at good paying prices.

London Markets.

London, Feb. 29, 1881.

The markets for breadstuffs, since our last issue, have been in the same inactive state. English buyers purchase merely to meet their immediate demands, relying on the surplus grain held by producers and speculators. There is, however, a slightly increased demand in English markets. Beerholm's telegram, London, 28, p. m., reports as follows: Wheat, 6d to 1s dearer; good cargoes of Cal. wheat off the coast were 45s 6d, now 46s; fairer. No. 2 Chicago spring wheat for shipment the present or following month, was 43s, now 43s 6d. Fair average. American maize was 25s, now 25c.

GRAIN

	Per 100 lbs		Per 100 lbs
Dehl Wheat	\$1 68 to 1 75	Peas	1 00 to 1 00
Treadwall	1 68 to 1 75	Oats	1 02 to 1 05
Clawson	1 68 to 1 75	Barley	1 00 to 1 40
Red	1 70 to 1 77	Corn	90 to 1 00
Spring	1 50 to 1 65	Rye	80 to 90
Red	1 65 to 1 75	Clover Seed	4 60 to 4 90
		Timothy Seed	2 60 to 3 00

PRODUCE.

Butter, crock	18 to 22	Potatoes, bag	65 to 75
do roll	20 to 25	Apples p bag	00 to 50
do keg	15 to 18	Turnips, p bu	00 to 25
Eggs	18 to 25	Beef, per qr	3 50 to 5 00
Carrots, p bu	15 to 25	Mutton, lb	7 to 8
Onions, bag	0 00 to 1 00	Lamb	9 to 10
Beef, per qr	5 00 to 7 00	Wool	27 to 00
Tallow red'd	4	Dressed hogs,	
" rough	6	per 100 lbs	6 40 to 7 00
Honey	20 to	Live hogs, do	6 50 to 8 00
Cordwood	3 50 to 4 00	Lard	9 to
Ducks	40 to 60	Geese, each	40 to 45
Chickens, pr	25 to 40	Turkeys	75 to 1 25
Cheese, per lb	13 to	Milch cows	25 00 to 40 00

FLOUR.

Flour, fall wht	3 25 to 3 00	Oatmeal fine	3 00 to 2 40
" mixed	3 00 to 2 75	" coarse	3 50 3 25
" spring	3 00 to 2 75	Cornmeal	1 75 to 1 50
Shorts, per ton	14 00 to 18 00	Bran, per ton	10 00 to 10 00

HAY AND STRAW

Hay, per ton	10 00 to 11 25	Straw, per load	0 06 to 3 00
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Liverpool Markets.

Liverpool, Feb. 23.—Flour, 8s 6d to 11s; wheat, spring, 8s 4d to 9s 4d; red winter, 9s to 9s 6d; white, 8s 9d to 9d; club, 9s 5d to 9s; corn, 5s 6d; oats, 6s 2d; barley, 5s 3d; peas, 6s 10s; pork, 68s; lard, 52s; bacon, 41s to 42s; beef, 73s; cheese, 68s.

Toronto Market.

Toronto, Feb. 28.—Fall wheat, \$1.62 to \$1.12; spring, \$1.12 to \$1.18; barley, No. 1, 98c; No. 2, 89c; No. 3, 73c to 83c; peas, 68c to 70c; oats, 35c to 38c; corn, 55c; flour, \$4.00 to \$5.10; bran, \$12; clover, \$4.75 to \$6.00; timothy, \$2.50 to \$2.75; hogs, \$8.00 to \$8.25; butter, 16c to 20c; oatmeal, \$3.85 to \$3.90; cornmeal, \$3.00.

Montreal Market.

Montreal, Feb. 28.—Market quiet but steady; prices unchanged. Flour, superior, \$5.30; extra, \$5.20; fancy, \$5.10; spring extra, \$5 to \$5.50; strong baker's, \$5.6 to \$6; Ontario bags, \$2.40 to \$2.60; oatmeal, \$4.25 to \$4.30; cornmeal, \$3 to \$4.10; wheat, nominal; oats, 36c; corn, 56c to 57c; peas, 80c to 82c; barley, 63c to 75c; rye, 85c; butter, western, 16c to 18c; Brockville and Morrisburg and Eastern Townships, 18c to 22c; cheese, 12½c to 14c; dressed hogs, \$8.25 to \$8.50.

New York Markets.

New York, Feb. 28.—Wheat, \$1.15 to \$1.18½; barley, dull and unchanged; oats, 43c to 48c; rye, 55c to 57; corn, No. 2, 57c; rye flour, \$5.25; pork, dull and unchanged; lard \$10.50; Chicago wheat, No. 2, 98½c; corn, 37c to 38c; rye, 92c; pork, \$11.45 to \$11.50.

Boston Markets.

Boston, Feb. 28.—Wheat, white, all grades, \$1.07 to \$1.20; red, all grades, \$1.10 to \$1.23; spring, \$1.00 to \$1.16; barley, \$1.15 to \$1.35 for Canadian; 85c to \$1.10 for State; corn 59c to 61c; oats, 57c to 60c; rye, \$1.00; buckwheat, per 100 lbs, \$1.50 to \$1.70; flour, \$6.50 to \$7.75; cornmeal, per bbl, \$3.80; oatmeal, \$5.00; rye flour, \$5.25 to \$5.75; potato starch, per lb, 3½c, by the carload; potatoes, per bush, 60c to 8 c.

Montreal Cattle Market.

Montreal, Feb. 28.—The cattle market was well attended to-day, and the supply of cattle was over 300 head. Prices were rather easier on account of the near approach of Lent. Prime beef ranged from 4c to 5c, second-class, 3c to 3½c, and third-third, 2c to 2½c per lb., live weight. There were no sheep or lambs on the market.

Buffalo Hog Market.

East Buffalo, Feb. 28.—Hogs dull and lower; receipts, 68 cars; shipments, 71 cars; 26 cars to New York. Yorkers selling, fair to choice, at \$5.70 to \$5.85; good, medium and heavy, \$5.00 to \$6; one load of choice (243 lbs.) at \$6.10.

Advertisements.

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THE FIRST OF A SERIES of Personally Conducted Through Passenger Trains for Winnipeg and the North west will leave Toronto at 12.50 p. m., and Hamilton at 2.30 p. m., on

Wednesday, March 2nd, 1881,

Calling at principal stations to Detroit, and will be followed by others leaving on 16th March, 6th and 20th April, 1881.

Through Freight Trains for emigrants' effects and general merchandise, under the direction of a special agent of the Company, leave on the 28th of Feb., 14th March, 4th and 18th April.

For rates and all other information, apply to J. McLevie, Manitoba Freight Agent; J. Knox, Manitoba Passenger Agent; Wm. Edgar, General Passenger Agent; G. B. Spriggs, General Freight Agent, Hamilton, or any of the Company's Stationmasters.

F. BROUGHTON, General Manager.

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February, 1881.

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Priced Catalogues sent as follows: No. 1, Fruits with plate, 15 cts.; plain, 10 cts. No. 2, Ornamental Trees, etc., with plate, 25 cts.; plain, 15 cts. No. 4, Wholesale, Free. No. 5, Catalogue of Roses for 1881, Free. No. 7, Catalogue of Strawberries and Small Fruits, Free.

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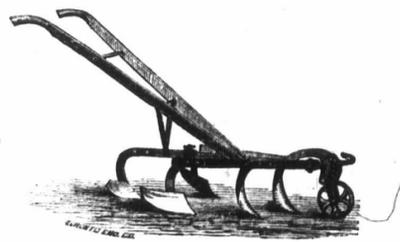
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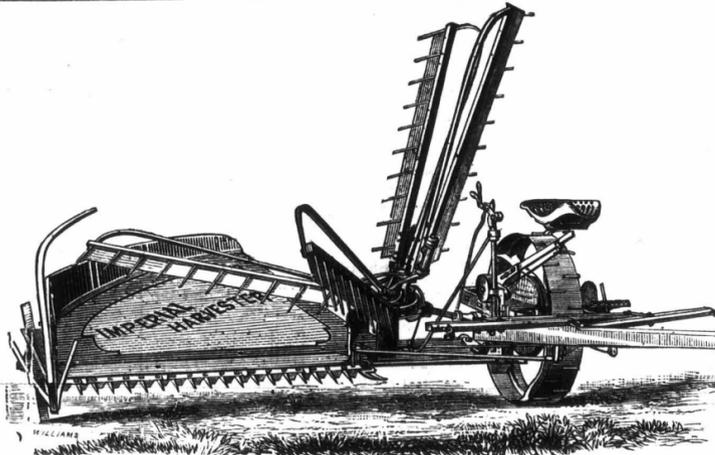
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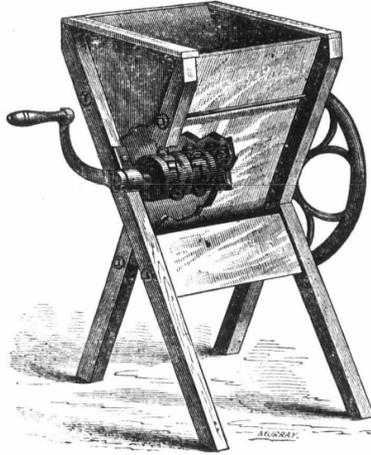
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"BELL" ORGAN

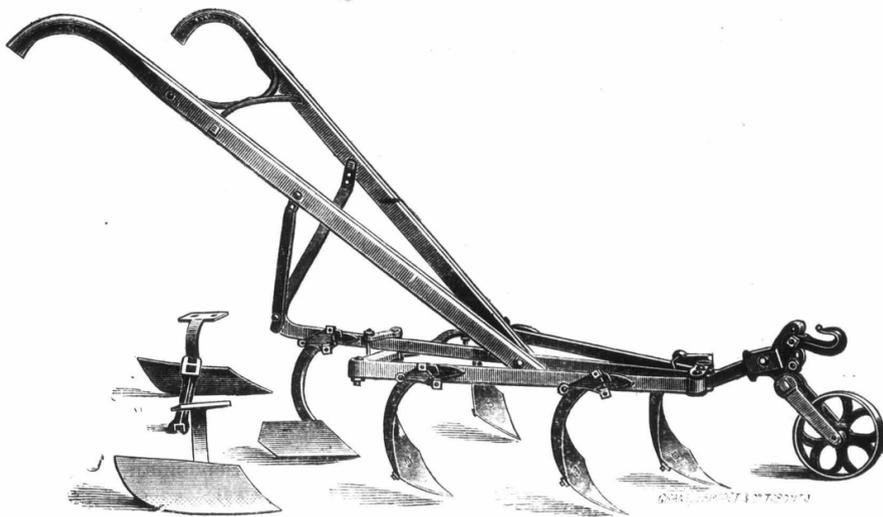
The following is what MR. HAGUE says about the **"BELL" ORGAN**:
 To J. Hecher, Esq., Agent for Bell's Celebrated Organs at Montreal.
 Dear Sir,—In handing your cheque in payment of the Bell Cabinet Organ I purchased from you, I cannot but say that the instrument is of a style and quality which I did not suppose capable of being produced in Canada, the tone is pure, rich and deep, and the effects that can be produced by combination of the stops are charming.
 Messrs. Bell & Co are to be congratulated on their success in developing the manufacture to such an extent as is manifest in the instrument you have sent me.
 Wishing them large and remunerative sales,
 I remain yours truly,
G. HAGUE,
 General Manager Merchant's Bank of Canada.
 Montreal, January 24th, 1879.

Received Silver Medal and Diploma at Provincial Exhibition..... 1871
 Received Silver Medal and Diploma at Centennial..... 1876
 Received International Medal and Diploma at Sydney, Australia..... 1877
 Received only Medal for Parlor Organs at Provincial Exhibition..... 1878
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W. BELL & CO.
41-47 E. MARKET-SQ.,
GUELPH, ONT.
 183-1

B
G
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 For
 Steam
Eggs
 183-tf
 LIST OF
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 Silver Grey
 Rocks and
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THE Diamond Point,

PATENTED 1880,

is represented by this cut. Frame is all iron. It has reversible diamond shaped blades. They can be placed on any part of the frame, and given more or less pitch into the ground.

All danger of breaking or bending any part is avoided by a wooden break-pin attached.

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F W THOMAS, Gen'l Manager.
Paid-up Capital, \$2,000,000
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Contingent Fund, 10,169

The London Branch of Molsons Bank, Dundas Street, one door west of the New Arcade,
ISSUES DRAFTS ON LONDON, ENG.
NEW YORK, U.S.
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and all the principal Cities and Towns in Ontario and Quebec.

Offers unusual facilities to those engaged in the produce business.

Deals liberally with merchants and manufacturers.

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Buys and sells Sterling Exchange, New York Exchange, Greenbacks, etc. at very close rates.

Makes advances on United States Currency and Securities on reasonable terms.

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Offers opportunity for safe and remunerative investments or accumulative savings.

JOSEPH JEFFERY,
Manager.
London, January, 1880. 169-12

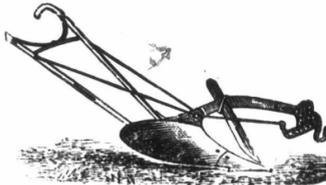
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Sent by Mail for \$1. Catalogue free.

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The "Little Hero" One-Horse Plough,



For Orchards, Gardens & Nurseries.

Made by COPP BROS. & CO.,

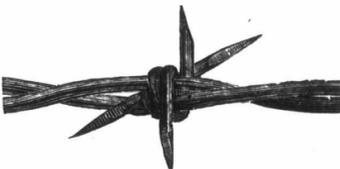
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Ploughs, Garden Seed Drills, Garden Cultivators (iron or wood), Garden Rollers, Horse Hoes, Straw Cutters, Corn Planters, etc.

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Weights 14 oz to the rod, and will stand 1,500 pounds to each line, before breaking. It is adopted by Railroads, Stock Raisers and Farmers, on account of its superior style of Barb, which passes between the two wires, firmly locking them together, then is wound around both, fastening the barb securely so that it cannot be moved, thus making the strongest, most durable, and cheapest wire in the market.

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Canada Land Plaster Co.,

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1st Prize at Guelph and Brantford, and 1st prize on Rock Gypsum at Toronto Exhibition.

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I am now prepared to ship to all parts of the Dominion. The Bricks and Tiles have a smooth surface, no sand being required, and they can be packed up directly from the machine. For particulars and Price, Address,

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R. C. Balmer, Druggist,
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D. Oliphant, Royal Exchange,
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Wm. Walsh, Hotel-keeper,

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FOR 1881.

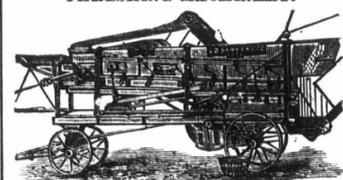
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