

# FARMER'S ADVOCATE

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## THE FARMER'S ADVOCATE & HOME MAGAZINE

WILLIAM WELD, EDITOR AND PROPRIETOR.

THE LEADING AGRICULTURAL JOURNAL PUBLISHED IN THE DOMINION.

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

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### Our Monthly Prize Essays.

CONDITIONS OF COMPETITION.

- 1.—No award will be made unless one essay at least comes up to the standard for publication.
- 2.—It is not necessary for essayists to agree with our policy, so long as they give sound reasons for differing from us.
- 3.—The essays will be judged by the ideas, arguments, conciseness and conformity with the subject, and not by the grammar, punctuation or spelling, our object being to encourage farmers who have enjoyed few educational advantages.
- 4.—Should one or more essays, in addition to the one receiving the first prize, present a different view of the question, a second prize will be awarded, the sum being decided by ourselves in each case, and the essay will appear in the same or in a succeeding issue.

Our prize of \$5.00, given for the best original essay on the following subject: *Is our Future Husbandry to be Special or Mixed?* has been awarded to Frank Howell, St. George, Ont. The essay appears in this issue.

A prize of \$5.00 will be given for the best original essay on: *Personal Observations on the Effects of the Removal of our Forests.* Essays to be sent in not later than January 15.

A prize of \$5.00 will be given for the best original essay on: *Improving the Soil by Green Manuring.* Essays to be sent in not later than February 15.

### Notice.

All letters respecting the business of the ADVOCATE should be addressed "FARMER'S ADVOCATE," and not to any private person. If intended for W. Weld personally, write the word "personal" or "private" above the address.

## Editorial.

### The Uses and Abuses of Land Plaster.

An inquirer in our correspondence columns, who owns an extensive gypsum quarry, asks us, amongst other questions, our opinion as to the value of this article as a fertilizer. As farmers in many sections of the country use more or less plaster on their land, we give the subject special prominence, and hope this article will be read with special attention by all our readers.

There is a general impression that any application to the land is beneficial which produces an increased yield in the crop. This sounds like common sense, but upon closer investigation, people's ideas have become greatly modified. A useful distinction is now drawn between fertilizers proper which act directly as plant food, and applications which act indirectly by making the food already in the soil more available for the plant; the former tend to increase the fertility of the soil, while the latter are conducive to soil exhaustion. These distinctions make the question one of great practical value. However, a sharp distinction cannot always be made; for an application which acts directly on one class of soil or crop may act indirectly on another, and on some soils or crops the effects may be both direct and indirect. The most common applications classified as indirect are salt and gypsum.

Plaster or gypsum is a sulphate of lime, that is to say, it is composed of lime in chemical combination with sulphuric acid. No crop can grow without lime and sulphuric acid, but repeated experiments have proved that the small percentage of these constituents required for the plant is sufficiently abundant in most all soils, the substances usually lacking being nitrogen, phosphoric acid and potash, so that fertilizers are only valued for the quantity of these ingredients which they contain. Gypsum therefore contains no constituent which has any commercial value in the fertilizers sold in our markets. Apart from these considerations, however, lime and gypsum have special functions which make them valuable if applied judiciously. It should also be borne in mind that some soils are constitutionally deficient in lime, in which case both lime and plaster act as a direct plant food.

It has been found in practice that plaster almost invariably increases the yield of leguminous plants, such as clover, lucerne, beans, and peas. In beans and peas, however, the tendency is towards an increase of the straw and leaves at expense of the seed, but this objection is not so much observed in the case of clover. There

are two reasons why plaster benefits clover:

(1) This plant contains a large percentage of sulphur, which it obtains from the sulphuric acid in the gypsum; (2) by a process of chemical decomposition in the soil, some of the acid becomes unlocked and carries potash down to the deep roots of the clover, and as clover feeds very greedily on potash, this action produces marvellous results on soils rich in potash. Gypsum therefore often produces effects superior to those of a potash fertilizer. That these effects are not produced by the lime is known by the fact that sulphate of magnesia produces the same results as sulphate of lime. From these facts it will be seen that gypsum possesses an agricultural value far beyond its market price, and in utilizing it on clover, the beneficial effects will be seen in the succeeding crops of the rotation. A clover crop prepared in this way makes a better preparation for wheat than the best conducted summer fallow, chiefly for the reason that the immense roots of clover produced by the gypsum, contain a large percentage of nitrogen—an element which is the special food for wheat and all other cereal crops.

These are considerations which largely detract from the best effects being obtained from gypsum. The best results can only be obtained in a moist climate, or in a season that is neither too wet nor too dry. It is uncertain for root crops—roots require phosphate foods—but if applied to roots, it will benefit a succeeding clover crop. Its effects are uncertain on grass. It is useless on a worn out soil, on a cold, wet, stiff clay, on dry sand, or on land which has a damp, springy subsoil. Favorable effects are usually obtained on a deep humus and on a warm loam.

Gypsum should be ground as fine as possible, and can be sown alone or with wood ashes. The best time to sow is in the spring when the weather begins to get warm, or when the clover begins to grow, and if the weather is then damp, so much the better. There is a very wide latitude in the quantities to be applied. Try various quantities, based on the observations we have made, from 150 to 250 lbs. per acre.

There is nothing better in the stables than a plentiful supply of gypsum, especially where the stock is highly fed, thereby producing rich manure. Such manure readily gives off large quantities of nitrogen in the form of ammonia, which has a strong suffocating odor. This is not only a waste of the most expensive fertilizer, but acts deleteriously to the health of the animals and their attendants. Gypsum absorbs and retains ammonia (properly called carbonate of ammonia.) It should be spread in the gutters after the stable is cleaned out, and also over the droppings, which prevents the rapid development of the ammonia,

thus keeping the air pure. It can also be advantageously spread over the manure heap when the decomposition is too rapid, thus preventing the loss of ammonia.

#### Effect of the Colonial Exhibition upon Canadian Fruit Culture.

We have published extensive accounts of what the Colonial and Indian Exhibition has done for our dairying interests; and it now remains to be said what effects the exhibition has had upon our fruit industry. Our country is to be congratulated on her good fortune in having had such an indefatigable worker as Prof. Saunders to represent her fruit interests, and in his no less able and conscientious successor, Mr. A. McD. Allan, the now president of the Ontario Fruit Growers' Association. The exertions of these gentlemen have resulted in incalculable benefits to our farmers and fruit growers, having brought our fruits conspicuously before the principal dealers in the leading markets of Britain and other countries, and having popularized the name of Canada where everything was previously regarded as American. Mr. Allan has proved the success of the cold storage system of shipping vegetables and the early varieties of fruits, which will enable our fruit growers to make shipments from all parts of the Dominion without risk of loss.

A radical change appears to be taking place in the tastes of British consumers with reference to the quality of the fruit demanded. The demand has been for highly colored varieties which, according to Canadian tastes, do not possess the quality of flavor; but now the demand for the best flavored varieties is rapidly increasing. This change will enable us to export larger quantities; our export trade in apples alone this year from Ontario reaching between three and four hundred thousand barrels, 100,000 from Nova Scotia, and 10,000 from Quebec. The demand for pears, plums, etc., is also likely to increase. For early varieties of fruits, there may be some difficulty in procuring cold storage facilities until the demand warrants the making of special preparations for the trade by the shipment companies. The trade in the later varieties, however, will not be effected, as no refrigerators are required for their transportation.

It is a remarkable incidence that Canadian fruits, like Canadian cheese, have advanced in the appreciation of British consumers as compared with American fruits, and now our apples bring about 2s. per barrel more than those from the United States. It was difficult to bring about this change, but now our apples are separately classified in the three great centres of distribution, viz., London, Liverpool and Glasgow. It may here be noticed that our reputation in one article of commerce helps us in our other products. Our freedom from stock diseases, our exemption from adulterations and fraudulent productions, especially oleomargarine, butterine, etc., and the reputation of our cheese, have all helped us marvellously, so that the mere mention of our name in the production of butter and fruits has carried great weight.

More than all this, the attention of British fruit dealers has been specially called to our fruits, and those who have heretofore purchased on commission are now anxious to pay cash for all shipments made by our fruit growers, thus bringing them into closer contact with the consumer, which will have the effect of putting into our pockets the profits of middlemen.

Surely we cannot be accused of exaggerating the quality of our fruits when we present the following resolution passed after careful inspection by so high an authority as the Fruit Committee of the Royal Agricultural Society of England:

"Having inspected the extensive and attractive exhibition of hardy fruits, comprising apples, pears, grapes, &c., from the several fruit-growing Provinces of the Dominion of Canada, the Committee desire to express the great gratification they derived from the opportunity of seeing the fine growth and high color of the majority of the specimens. Many varieties were tasted and found excellent, more especially the tender-fleshed apples. In comparing some well-known varieties that have long been in cultivation in Great Britain, the Canadian apples are found to differ in that rich flavor which is peculiar to some of the British apples. The Committee are aware that some samples of fruit were gathered before maturity in order to be presented at this Exhibition."

There is hardly any limit to the extent to which our fruit trade may be developed. Inquiries and orders have come in from Norway and Sweden, and even little Denmark, who is getting so jealous of us on account of our rivalry with her in the English butter markets, is noticed amongst the inquirers for our fruit. Not less brighter are our prospects of an extensive trade with Germany, India, Australia and other countries, not only for fresh fruits, but also for our evaporated fruits and vegetables.

The prospects being so encouraging, now is the time for our farmers and fruit growers to take courage and act according to the inducements placed before them. In many localities orchards may be a specialty, and there is no reason why almost every farmer should not have a few acres under orchard. Only the most marketable varieties should be selected, for there can be little or no profit in gathering a few apples here and there over a large extent of territory. No matter how good the varieties, good samples cannot be produced without managing the orchard properly, paying strict attention to pruning, cultivating and manuring. It is the destiny of Ontario to drift more into specialties, and dairying and fruit growing may profitably go hand in hand.

#### PRIZE ESSAY.

#### Is Our Future Husbandry to be Special or Mixed?

BY FRANK HOWELL, ST. GEORGE, ONT.

In considering this subject, perhaps as good a plan as any would be to form ourselves into a debating society for the time being, discuss the various advantages in connection with each form of husbandry, and then decide from the points made in each which is the better plan.

We will suppose that it is resolved that the husbandry of the future is to be special. Without any introductory speech, we will open the discussion by introducing the first point on the affirmative side, viz., *the specialist can devote his whole attention to the specialty which he has decided shall be his*. In the professions, we find that the specialist is generally the most skilled in the particular branch of a profession which he has decided to make a specialty, which is but the natural result of special study and practice. Farming is generally called an occupation, but is it not a profession? The successful farmer must

both study and practice; in other words, he must be a "professor" of husbandry.

Time being called, we will now open the negative side by the assertion that *he who follows mixed husbandry has his work more evenly distributed throughout the year*. At first thought this may appear to be false; but it seems reasonable to suppose that with the greater variety of crops and farm produce, and the different seasons for marketing them, the ordinary farmer should be able to go about his work more leisurely, and should be able to do a greater amount without help than would the specialist. A man who is farming, say a hundred acres, can, with the labor-saving implements now in use, get along very well with but one hired hand through the summer, excepting, perhaps, a few occasional days. The specialist, on the other hand, is obliged to have quite a number of men about him for a part of the summer, and perhaps at other times he is comparatively idle. There are a few exceptions to this, no doubt, such as dairying, stock-raising, etc., but they are only exceptions, and not the rule.

Another point for the affirmative side is that *the specialist can command better prices and a steadier market for his produce*. In this, of course, we are speaking generally. Many farmers can furnish first-class samples of different articles of produce, but the specialist has the opportunity of making samples "first-class A;" and, by shipping such large quantities, and with his private brand on each shipment every year, he can not only secure the "first-class A" prices, but he opens up for himself a steady market, the permanency of which rests with himself.

On the other hand, *the ordinary farmer is the more independent of the two*. If the crop of the specialist be a failure for one year, he must look to some other source for means to buy the necessaries of life, while the ordinary farmer seldom finds himself without at least a little flour, a few potatoes, one porker, and a few pounds of wool for clothing. This is the secret of the farmer's proverbial "independence."

*But the returns of the specialist generally come in comparatively large receipts*. This is something which is a source of great satisfaction, as the large amounts are much more likely to be dumped into the "big hole" which is in waiting for them than are the small amounts which are gathered now and again, and which generally find their way to the "little hole" in the bottom of his pocket.

This, however, is partly offset by the fact that *the ordinary farmer has a greater uniformity of income from year to year*. For instance, the special crop may be a complete failure one year, and a great success the next; but if the ordinary farmer loses one crop, he generally has others to make up for the loss to a certain extent, at least.

Another point in favor of the specialist (provided he is willing to meet the extra expense, if there be any), is that *he can select a soil specially adapted to his purpose*. With such a soil, and a climate in which his crop will feel at home, the rest lies pretty much in his own hands, and he should be able to "make or break." Any crop, and a soil particularly adapted to that crop, stand in much the same relation to each other as a basket of provisions does to a hungry man; it is just what he wants. A barnful of hay would not satisfy him; and yet the hay is worth far more than the basket of provisions when fed to a horse, because it is adapted to his needs.

*But the ordinary farmer, if he have a variety of soils (as many farmers have), can reverse the order and adapt the crop to the soil*. This would do away with the rotation of crops to a certain

extent, and at proper intervals, rotation would not be so necessary in order to maintain the fertility of the soil.

*The specialist can economize in the use of fences, implements, etc.* Not needing such a variety of implements, he can make such as he does need pay for themselves in one season. This cannot be said of all the implements which the ordinary farmer is obliged to use at times. As far as fences are concerned, he could throw his whole farm into one field, thereby saving land and the wear and tear of fences.

This is the last point which we will mention on the affirmative side, and we have but one more to offer on the negative side, which is that *the work of the ordinary farmer is not so monotonous.* He has ever something new to demand his attention until another year brings around nearly the same routine, which has almost become new again.

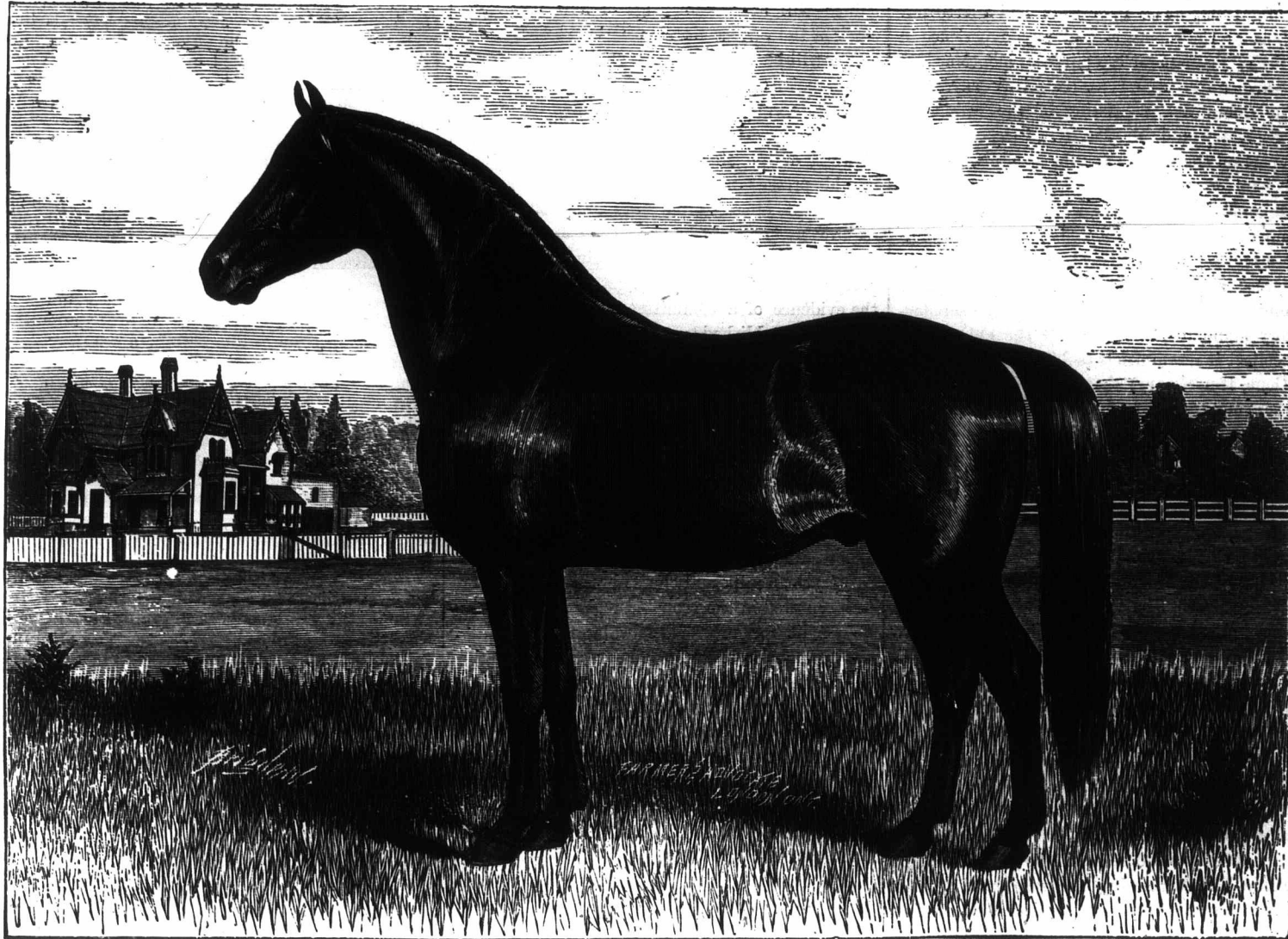
I have now made five points for each side.

**A Coming Breed of Horses for Various Purposes.**

The accompanying illustration represents "Falconer" (609), a pure-bred Cleveland bay stallion, imported and owned by Mayor Hodgens, Elmwood Farm, London, Ont. Falconer was sired by Sportsman (299), dam by Forester (113), and is registered in the Cleveland Bay Stud Book. He is three years old, and, judging from his ancestry, will weigh about 1,500 pounds when full grown.

The active demand in Canada for first-class coach and carriage horses induced Mr. Hodgens to make an importation of Cleveland Bays from England. This breed is very scarce, even in its native county, Yorkshire, England, but he was

To make superphosphate, take a large tub or barrel and put into it 100 lbs. water; add, very slowly and cautiously, 43 lbs. of pure sulphuric acid. You must be very careful while handling this article not to let it touch your skin or clothing, as it will instantly blacken the skin and destroy the clothing wherever it comes in contact, and when mixed with water it engenders a very intense heat. Into this mixture throw 100 lbs. weight of bones, no matter how old or useless they may be. The sulphuric acid instantly attacks and enters into combination with the bones, reducing them to a pasty consistence and completely dissolving them. Keep under cover and turn them over occasionally while the process is going on, and when completed dump out the whole contents on the floor or on a plat-



PURE CLEVELAND BAY STALLION, "FALCONER." THE PROPERTY OF T. D. HODGENS, LONDON, ONT.

Taking it on the whole, the points made on the affirmative side appear to have the most weight, and we seem forced to the conclusion that special husbandry is the more profitable; but upon taking a somewhat broader view of the subject, we find that although it may be more profitable at the present time, yet, if a large majority of the farmers of to-day were to decide to follow a certain specialty which may seem to be profitable, competition would begin at once, and prices would be correspondingly low, which would be a serious drawback to the success of the undertaking. The matter would require to be regulated so that the number engaged in each special line would correspond with the demand for such produce.

Admitting, however, that special husbandry is to be the husbandry of the future, I venture, nevertheless, to predict that mixed husbandry will be for the many, and special husbandry for the few.

able to secure eight one-year-olds for importation, no older stallions being available.

We publish in another column a history of this excellent breed, which will undoubtedly be the favorite, when its merits become generally known, for the breeding of coach, carriage, general purpose, and army horses.

An illustration of Mr. Hodgens' residence is seen in the background.

The *Drovers' Journal* quotes with approval the true remark that the Washington Bureau of Agriculture is "utterly worthless to anybody other than those kept in its employ." Especially is the "Animal Industry" branch, hatched under the Loring administration, an outrage upon taxpayers and in particular upon the whole live stock interest.—*N. Y. Tribune.*

form of boards, and thoroughly work into a mass four times its bulk of dry bog earth or dry road dust; mix and pulverize completely with a wooden shovel. The bog earth acts as an absorbent or dryer, retaining the fertilizer properties of the compound, and rendering it easy to perform of uniform distribution. If whole bones are used it will take six or eight weeks to dissolve them. If they are broken with an axe, they will dissolve in about three weeks. If they are ground in a bone mill, four days will be sufficient. This manure is not the most powerful fertilizer in existence, and when made by these directions is the cheapest, as one ton is equal to 32 tons of barnyard manure. For top-dressing grass lands, use 300 lbs. per acre; for corn, potatoes, beans, turnips, etc., apply 450 lbs. per acre in the drills, mixing with the soil. For wheat, rye, oats or barley, 400 lbs. per acre. Harrow in with the seed. For buckwheat, 300 lbs. per acre,

## Farmers' Clubs.

### Dominion Farmers' Council.

[This Council meets on the third Saturday of every month at 2 o'clock p. m. All communications should be addressed to the Secretary, W. A. Macdonald, London, Ont. The Council has now on hand pamphlets containing its Constitution and By-laws, with an account of its origin, also pamphlets containing a form of Constitution and By-laws suitable for Farmers' Clubs, which will, on application to the Secretary, be distributed free to all parties having in contemplation the organization of clubs.]

The regular monthly meeting of this Council was held on the 18th ult., President Leitch in the chair.

Amongst the communications read was one from Mr. James Fletcher, Government Entomologist, Ottawa, enquiring if any members of the Council had any knowledge or experience of the use of gas-lime as an insecticide and a fertilizer.

None of the members had any experience in the use of gas-lime for the purposes mentioned.

#### REPORT OF COMMITTEE ON DAIRY TESTS.

The Committee, consisting of the President, the Secretary and Mr. Jas. K. Little, appointed to report on the scheme for the establishment of a register for dairy stock based on individual merit, presented its report, which reads as follows: "Your Committee recommends that the contemplated register be established, and that it contain pedigreed as well as unpedigreed stock. Your Committee find it difficult to establish satisfactory standards, but from all the evidence it can collect it recommends (subject to future modifications, if necessary) that the quantity of milk per season be equal to five and a half times the approximate weight of the cow tested for registration, and the standard of quality be four per cent of butter fat; that the registered stock be divided into three classes, viz., small, medium, and large, and that the Secretary be instructed to write to Mr. Jas. W. Robertson, Professor of Dairying at the Model Farm, asking him to make such experiments as will enable you to form a correct judgment as to the division of cows into said three classes; namely, to make such weights and measurements as will facilitate the approximating of the weight by the measurements.

"JAS. K. LITTLE, Chairman."

PRESIDENT LEITCH—I believe the principles embodied in the report are sound. Few farmers have scales for weighing their stock, and if they can approximate the weights by the measurements, an important step will be gained. There are rules for ascertaining the weights of animals by the measurements, but we do not know how accurate these rules are. If the weight cannot be approximated in this way, the next question to be decided will be, Shall we be guided by the measurements alone? In this case we must depend largely upon the advice of Prof. Robertson.

HENRY ANDERSON—There is another principle upon which the report may be regarded as sound, namely, that the experiments conducted at the Model Farm should originate in farmers' organizations after deliberate consideration, as they would then be practical and have more weight. But, I confess, I can hardly see the drift of this register. Must every cow be tested before she can be registered, or will the offspring of registered cows be eligible for registration?

JAS. K. LITTLE—This question was discussed in committee, and the answers are implied in the report. Every cow must be tested before she can be registered, but whether or not her male offspring will be eligible for registration the Com-

mittee has not decided. It would probably be advisable to register bulls from registered stock when they proved themselves to be good getters. It has been the object of the Council not to admit stock that is registered in any of the herd books, as this might clash with the objects of our breeders, but none of the breeders who are members of this Council looked upon the matter in this light, and the Committee has therefore recommended the registration of all classes which come up to the standard. The Committee also discussed the question as to whether a deficiency in quality below the standard could be made good by an extra quantity above the standard, and *vice versa*; but no conclusion was arrived at. The object of the register is not to establish a new breed, although the tendency may be in this direction. One important object to be gained will be a knowledge of how true good stock of the various classes will breed their kind, which will be ascertained by testing all the cows before registration.

PRESIDENT LEITCH—I see nothing to hinder the progress of the work, except, perhaps, the dividing of the stock into three classes, which should present no serious difficulty. The test instruments are so simple and expeditious that it requires no expert to handle them; and although their cheapness brings them within the reach of every farmer, farmers' clubs get them free, and the evidence of a committee of this Council, or of clubs established under the auspices of the Council, should be placed beyond suspicion as to the accuracy of the tests. The dividing of the cows into three classes is equivalent to a test of the cost of production of the milk, for my experience is that the quantity of food consumed bears a very close relation to the size or weight of the cows under normal conditions. These tests will put an effectual check to the disgraceful practice of breeding cows which produce watery milk, calling them milk and cheese breeds. The cows to be entered in the proposed register will receive no credit for any of the water in their milk.

Upon motion of Henry Anderson, seconded by John Kennedy, the report was adopted. When programme of the day was called, the Secretary stated that he had received a letter from Mr. J. B. Freeman, M. P. P., stating that he could not prepare his paper on "Renting Farms on Shares" in time for the December meeting of the Council, but would have it ready for the January meeting.

The Secretary filled the vacancy by delivering a lecture on "Testing Milk and Cream." [A part of the lecture appears in the Dairy columns of the ADVOCATE.]

One of the most successful farmers in the U.S., when he commenced farming, didn't know enough to get a new plow point when the old one was worn out. He farms on scientific principles.

Mr. A. S. Fuller states that a tap-root is not essential to the life, growth, or productiveness of nut-producing trees. He is inclined to the opinion that the removal or shortening of the tap-root of nut-producing trees is beneficial, as it causes the growth of laterals. He affirms that the tap-root of trees is generally very short-lived. If the tree grows on very dry and rocky soil, the tap-root may live for many years and be of great value to the tree by obtaining moisture at a depth not reached by ordinary roots. On most soils, however, he declares that the tap-root dies after the tree becomes well-established and attains a considerable size.

## The Farm.

### How the Farmers are Trampled in the Dust.

We make the following extracts from the annual address of the Dominion Grange, recently delivered in Toronto by Worthy Master Wilkie, and we make comments thereon in another column:—

There has been far too much boasting about the condition of the farmers in this country, and the result is that a false impression has gone abroad of the amount of wealth which exists amongst them. It is said that in addition to their valuable farms, large amounts lie to their credit in the banks. But the money thus deposited is very often intended to meet mortgages which are coming due and other liabilities of a like nature which are maturing against their property, and which they are struggling to wipe out. Doubtless a very large amount of capital is invested in farming, but much of it belongs to capitalists and is only loaned on the land—a very large proportion of which is under mortgage, much greater than most of the people suppose. And much of it is hopelessly sunk. The only hope that still remains in many cases is that the land may be sold for something more than the amount of encumbrance. If any one doubts this let him turn to the number of advertisements of farms for sale. The newspapers are full of them, and hundreds of land agents throughout the country are furnishing long lists free to any expectant purchaser. The owners of these lands are not men who are retiring on their fortunes, nor are they men who desire to engage in other pursuits. A large proportion of them are men who are selling to save the little which still remains, there being no longer any hope of saving the farm. A great deal of the money loaned on Canadian farms belongs to men in other countries, and is loaned by agents and monetary institutions. In such cases the capital invested does not all belong to the farmer; in some cases his interest in the land is very small, the balance belonging to the money lender, the farmer having the right to re-purchase, or call it redemption, if you like. But who pays the taxes?

The farmer pays it all—pays taxes on the full cash valuation, whilst the money-lender, if he pays anything, pays only on the interest he collects. But there is a great amount of capital invested in land, stock and implements, which belongs to the tillers of the soil of this Dominion. The actual return from this investment, after counting out the value of labor expended and contingent expenses of farm operations, is perhaps less from the same amount invested in any other industry. There is nothing more uncertain than the returns of the farm. It may be tilled in the very best manner, the crops may be sown with the greatest judgment and care; but the misfortune of a wet season or a protracted drought, or the ravages of insects, may render the whole unprofitable. But the work has to be done. The crop must be harvested. What there is must be taken care of, for "half a loaf is better than no bread," and if there is but little there is more need for it. The price of produce has much to do with the profit of the farm, and the farmer has the option of taking the dealer's prices or keeping his produce. For what he buys he pays the price fixed by others, and for what he sells it is the same. In both cases it is often fixed by rings and combinations, and all he can do as an individual is to submit.

It is not easy to find a remedy for these difficulties; if any can be brought about it must be by organization; singly and alone, the farmer can never cope with the overwhelming odds against him. The world of to-day seems to be run by rings and monster combinations. Every class is organized. The laborers are organized. The mechanics, the dealers, the doctors, the lawyers, all trades, occupations and professions have their active organizations of some kind, and are keenly alive to their advantages. The farmer alone seems to be the only man who looks on with indifference; and with amazing innocence he argues that there is no necessity for these organizations, that the world is none the better for them; that there was

no such nonsense in olden times, and he will neither aid nor countenance the like. He does not seem to realize that the world of to-day is not like the world of olden times, nor that the net is weaving around him. Immense amounts of capital are gathered together and thrown into huge enterprises. And these again are amalgamated and placed under one board of management, being more easily controlled in this manner, and competition reduced to a minimum or entirely destroyed. Some instances of such combinations will be fresh in everyone's mind. The salt monopoly which existed prior to the opening of the Grange Salt Works at Kincairdine had forced the price of salt up to \$1.50 per barrel, but as soon as the Grange works opened it fell nearly to one-third of that price, and the salt trade has been completely demoralized ever since. Last summer there was a ring or combination amongst the manufacturers of binders, and during its existence nothing less than \$200 would purchase a binder; but it went to pieces when they found they could not sell at these prices and were likely to be left with a large number on their hands, and in some instances they were sold for about half that price. Lately a combination has been perfected amongst the cotton manufacturers, and prices have materially advanced, and it may be long before they are so low again as the late prices.

Amongst the rings or combinations we might almost class the lawyers, or the law which we get at their hands. Our legislatures, which are composed chiefly of lawyers, have tinkered and amended and enacted laws until they are so perfect that they are a perfect uncertainty. They are like the man's tree that stood so straight that it leaned the other way. The law has become a terror to the poor man, for in most cases to him it means ruin. This has become so well understood that thousands suffer grievances rather than appeal to the tribunals which ought to enforce justice, for "when they ask for bread they receive a stone." The courts are conducted much on the principle of a debating club, the chairman of which decides according to the arguments brought before him, quite irrespective of right or wrong. And those who are dissatisfied may appeal to another tribunal, and continue the argument, if they can stand the expense, and in the end they will discover that law and justice are quite distinct.

The railways, though of great utility, are perhaps the most grinding monopoly in this country. Hundreds of millions of the people's money have been given to assist in their construction, much of it on specific conditions which have been systematically disregarded and tantalizingly set aside and the people's rights completely ignored. They do as they like and charge as they please, but always against local trade and traffic, charges often being so high as to preclude the possibility of profitably shipping over their own lines between local points. Our Parliaments are composed largely of the hirelings of railway companies, and the laws are made to suit the purposes of their employers. All railroad law is made in the interests of the railroads, so any appeal to the courts is all but useless, and if they are beaten in one court they carry it to the next, so nothing but corporations or wealthy individuals are able to stand the expense.

How long are such abuses to continue? How long will farmers continue to fill our legislative chambers with professional men, whose interests run opposite to their own, and who are paid to deprive them of right and justice? In every county are to be found men well qualified to represent the agricultural interests of the country, men who have no conflicting interests with the farmers, men whose interests are identical with their own, and who would represent them with fidelity and ability. Why are they not selected for this purpose? The answer, I fear, in many instances, is to be found in too strict an adherence to party politics. Rather than support one who had not been identified with their own political party, they support one less suitable, or whose services may be engaged against their interests. Party politics are the bane of the country. It is often said there must be two political parties always. I cannot see it in this light. Political parties in Canada have not always been divided by principles; they have been divided by men. Measures should divide irrespective of where they come from, and this is not always the case. Experi-

ence has shown it to be seldom the case. The people should support the right, irrespective of where it comes from. No party is always right, nor no party always wrong, and right and wrong will be found with both parties. The people, as a body, honestly desire to support what is right. Why, then, is there so much contention—so much bitter party feeling on this subject more than any other? When our intentions are alike why cannot we see alike? The reason, I believe, is because we are differently informed; we draw our conclusions from our information, and they are not the same. Our people are an intelligent people, and a reading people; but their reading is largely from party newspapers, which unfortunately are so biased that they mislead their readers. And thus their knowledge of party men and matters is drawn from an over-zealous partisan press from month to month, and from year to year, until they become so prejudiced that they will believe nothing else nor hear anything else. Were we only to use a little common sense we would notice that in all other respects men of both parties are about alike. The men who support one party are about as good and intelligent as those who support the other, and if we could only get at the honest, naked truth, without coloring or distortion, we would be very likely to arrive at very nearly the same conclusion, and could with feelings of greater confidence uphold what we believed to be right and condemn what we thought wrong. But the information we can at present gather from the political press of either party is so garbled, warped and one-sided that any unprejudiced mind must receive it with great uncertainty.

[Mr. Wilkie forgot to mention that a large number of farmers are waiting for the Government to send out experts to organize them.—Ed.]

#### Council Meeting of the Agriculture and Arts Association.

A meeting of the Council of this Association was held on the 8th ult. in the city of Guelph. The Vice-President, Mr. J. C. Snell, presided, who, on taking the chair, expressed deep regret at the sad circumstances which brought him to the chair, namely, the sudden death of their late honored President, Mr. H. Parker.

Moved by Mr. Ira Morgan, seconded by Mr. Chas. Drury, that the unexpected and lamentable death of Henry Parker, Esq., President of the Agricultural and Arts Association of Ontario, who was closely and prominently identified with this Association for the last number of years, has recently been learned by the members of this Council, and with deep and heartfelt regret, and we take this the earliest and best opportunity to place on record our high appreciation of the important services he has rendered while a member of this Board, and the present year as President. That we desire also to express our sense of the loss that this Council has sustained in the death of one whose ability and zeal in the discharge of his duties, at all times, able in discussion and wise in his suggestions, as well as in his uniform courtesy with his fellow members, will be long remembered, and now more so, feeling his loss and absence in this the present and last meeting of the year, over which, if spared, he would have presided. Be it resolved that a copy of the foregoing resolution, properly engrossed, signed by the Vice-President and Secretary, and sealed with the seal of the Association, be forwarded to Mrs. Parker, who has the deep sympathy of this Council in the sudden and sad bereavement, and that a copy of the same be entered in the minutes of this Council.

The members of the Council spoke in terms of the highest appreciation of the character and usefulness of their late lamented President.

Mr. Drury presented an estimate of the ex-

penditures required by the Council for the next year, as follows:

Prize Farms, \$250; Council Expenses, \$725; Veterinary College, \$125; Prize Essays, \$100; Salaries, \$1,500; Exhibition, \$5,500; Postage and Printing, \$600; Educational Scheme, \$500; Fat Stock Show, \$700; Total, \$10,000.

A discussion took place on the estimates. Mr. White wanted the prize farm expenditures to be devoted to plowing matches. Mr. Moore also favored plowing contests, but thought the scheme too expensive. Mr. Drury strongly favored the prize farm scheme, as he considered the reports of the prize farms were read with great interest. He also supported the educational scheme, although it was not so successful as should be expected.

The estimates were passed as above enumerated.

Mr. Ira Morgan, in a vigorous speech, supported the claims of Ottawa for the holding of the Provincial Exhibition, and made a motion to this effect, seconded by Mr. Drury.

Mr. Aylsworth moved, seconded by Mr. Legg, that the Exhibition be held in Kingston. The seconder supported the claims of Kingston by stating that that city had completed arrangements for the grounds, and that suitable buildings would be put up. Mr. White contended that the passing of a motion so soon for the holding of the Exhibition would prevent other applicants from putting in their claims, but the Exhibition, he contended, must next go east. He expected that the Dominion Government would also give a grant, if the matter were decided now. He would vote for Ottawa. Mr. Drury contended that Kingston could give no assurance of being ready, while Ottawa had given such assurance.

The question was put and the motion in favor of Ottawa was carried.

Moved by Mr. Drury, seconded by Mr. Aylsworth, that the International Association of Fairs and Expositions be invited to hold their fourth annual convention in the city of Toronto, in 1887. Carried.

Farmers who have been studying the wheat-chess question will be interested in the following communication to the *Freeman's Journal* from an Irish farmer, who claims to have found a stalk of wheat from which grains of oats were growing: "In our opinion it has been caused by the hybridizing of some of the wheat stamens when in flower by the pollen of oats growing in the same field. It seems that a manured root crop was followed first by one of oats and subsequently by one of wheat, and it is probable that some of the shed grains of the former germinated late among the latter. As such hybridizing is very rare, and is surrounded by difficulties, the phenomenon is very remarkable. But, according to good authorities, still more extraordinary things have occurred with cereal crops. Stephens, in his 'Book of the Farm,' quotes Mr. Cowper, of Towcester, as growing both wheat and barley from oats, and some of Mr. Cowper's neighbors as producing rye from black Tartarian oats. As the native country of wheat, barley, oats and rye has not been determined, and as these cereals are not known in their original wild state, it may some day come to be proved that they are not distinct species, but very distinct varieties of one plant. This would account not only for the hybridizing in the case of Mr. O'Malley's wheat, but also for the result of Mr. Cowper's experiments."

### What Sir J. B. Lawes Has Done for Agriculture.

The agricultural experiments conducted by Sir John B. Lawes, Rothamsted, England, are extensively quoted by agricultural writers on both sides of the Atlantic, and the benefits which he has conferred upon British farmers, as well as those in other countries, are universally acknowledged. There are many experiment stations in Europe, but they are mostly all supported by the government, while Sir John's is conducted at his own expense. "These investigations began in Germany, and have been followed up at Rothamsted. All that can be done at our stations is to copy these experiments more or less faithfully. As we have said very little about the work accomplished by Mr. Lawes, we present the following account of it as epitomized under his direction:—

Mr. Lawes commenced experiments soon after entering into possession of his hereditary property in 1834. The researches of De Saussure on vegetation were the chief subject of his study to this end. Of all the experiments so made, those in which the neutral phosphate of lime, in bones, bone-ash, and apatite, was rendered soluble by means of sulphuric acid, and the mixture applied for root-crops, gave the most striking results. The results obtained on a small scale in 1837, 1838, and 1839, were such as to lead to more extensive trials in the field in 1840 and 1841, and subsequently.

In 1843 more systematic field experiments were commenced; and a barn, which had previously been partially applied to laboratory purposes, became almost exclusively devoted to agricultural investigations.

The station has been entirely disconnected from any external organizations, and has been maintained entirely by Mr. Lawes. He has further set apart a sum of £100,000, and certain areas of land, for the continuance of the investigation after his death.

In 1854-5 a new laboratory was built, by public subscription of agriculturists, and presented to Mr. Lawes, in July, 1855.

From June, 1843, up to the present time, Dr. J. H. Gilbert has been associated with Mr. Lawes, and has had the direction of the laboratory. At first only one laboratory man was employed; but very soon a chemical assistant was necessary, and next a computer and record-keeper. During the last twenty-five years the staff has consisted of one or two, and sometimes three chemists, and two or three general assistants. There are now more than 30,000 bottles of samples of experimentally-grown vegetable produce, of animal products, of ashes, or of soils, stored in the laboratory.

A botanical assistant has also occasionally been employed, with from three to six boys. Two or three (for some time past four) computers and record-keepers have been occupied in calculating and tabulating. Chemical assistance is frequently engaged in London, or elsewhere; and, for some years past, Mr. R. Richter, of Berlin, has been almost constantly occupied with analytical work sent from Rothamsted. The field experiments, and occasionally feeding experiments, also employ a considerable number of agricultural laborers.

#### I.—FIELD EXPERIMENTS ON VEGETATION.

The general plan of the field experiments has been:—

To grow some of the most important crops of rotation, each separately, year after year, for many years in succession on the same land, without manure, with farm-yard manure, and with a great variety of chemical manures; the same description of manure being, as a rule, applied year after year on the same plot. Experiments on an actual course of rotation, without manure, and with different manures, have also been made.

Comparative experiments with different manures have also been made on other descriptions of soil, in other localities.

Samples of all the experimental crops are taken, and brought to the laboratory. Weighed

portions of each are partially dried, and preserved for future reference or analysis. Duplicate weighed portions of each are dried at 100° C., the dry matter determined, and then burnt to ash on platinum sheets in cast-iron muffles. The quantities of ash are determined and recorded, and the ashes themselves are preserved for reference, or analysis.

In a large proportion of the samples the nitrogen is determined; and in some this amount existing as albuminoids, amides, and nitric acid.

In selected cases, illustrating the influence of season, manures, exhaustion, &c., complete ash-analyses have been made, numbering in all more than 700.

Also in selected cases, illustrating the influence of season and manuring, quantities of the experimentally-grown wheat grain have been sent to the mill, and the proportion and composition of the different mill-products determined.

In the case of the experiments on the mixed herbage of permanent grass land, besides the samples taken for the determination of the chemical composition (dry matter, ash, nitrogen, woody fibre, fatty matter, and composition of ash), carefully averaged samples have frequently been taken for the determination of the botanical composition. In this way, on four occasions at intervals of five years—viz., in 1862, 1867, 1872, and 1877—a sample of the produce of each plot was taken, and submitted to careful botanical separation, and the percentage, by weight, of each species in the mixed herbage determined. Partial separations, in the case of samples from selected plots (frequently of both first and second crops), have also been made in other years.

**Investigation of Soils.**—Samples of the soils of most of the experimental plots have been taken from time to time, generally to the depth of 9, 18 and 27 inches, sometimes to twice and sometimes to four times, this depth. In this way about 1,500 samples have been taken, submitted to partial mechanical separation, and portions of the sifted soil have been carefully prepared and preserved for analysis. In a large proportion of the samples the loss on drying at different temperatures, and at ignition, has been determined. In most the nitrogen determinable by burning with soda-lime has been estimated. In many the carbon, and in some the nitrogen as nitric acid, and the chlorine have been determined. Some experiments have also been made on the comparative absorptive capacity (for water and ammonia) of different soils and subsoils. The systematic investigation of the amount, and condition, of the nitrogen, and of some of the more important mineral constituents, of the soil of the different plots, and from different depths, is now in progress or contemplated.

**Rainfall and Drainage.**—Almost from the commencement of the experiments the rainfall has been measured. From time to time the nitrogen, as ammonia and as nitric acid, has been determined in the rain waters. The chlorine, and the sulphuric acid, have also been determined in a considerable series of samples.

Three "drain gauges," also of one-thousandth of an acre each, for the determination of the quantity and composition of the water percolating respectively through 20 inches, 40 inches, and 60 inches depth of soil (with its subsoil in natural state of consolidation) have also been constructed. A more numerous series of smaller "drain gauges," arranged for the investigation of the influence of different crops, and of different manures, on the amount and composition of the drainage waters, has been constructed; but they have been found to be not sufficiently water-tight. Each of the differently manured plots of the permanent experimental wheat field having a separate pipe-drain, drainage waters have been and are frequently collected and analysed.

**Water Transpired by Plants.**—For several years in succession, experiments were made to determine the amount of water given off by plants during their growth. In this way various plants, including representatives of the graminaceous, the leguminous and other families, have been experimented upon. Similar experiments have also been made with various evergreen and deciduous trees.

**Botanical Characteristics.**—Having regard to the difference in the character and amount of

the constituents assimilated by plants of different botanical relationships, under equal external conditions, or by the same description of plants, under varying conditions, observations have been made on the character and range of the roots of different plants, and on their relative development of stem, leaf, &c. In the case of various crops, but more especially with wheat and beans, samples have been taken at different stages of growth, and the composition determined, in more or less detail, sometimes of the entire plant, and sometimes of the separated parts. In a few cases the amounts of dry matter, ash, nitrogen, &c., in the above-ground growth of a given area, at different stages of development, have been determined. The amounts of stubble of different crops have also occasionally been estimated.

**Assimilation of Free Nitrogen.**—Experiments were made for several years in succession to determine whether plants assimilate free or uncombined nitrogen, and also various collateral points. Plants of the graminaceous, the leguminous, and other families, were operated upon.

#### II.—EXPERIMENTS ON ANIMALS, ETC.

Experiments with the animals of the farm were commenced early in 1847, and have been continued, at intervals, up to the present time.

The following points have been investigated:

1. The amount of food, and its several constituents, consumed in relation to a given live-weight of animal within a given time.

2. The amount of food, and of its several constituents, consumed to produce a given amount of increase in live-weight.

3. The proportion, and relative development, of the different organs or parts of different animals.

4. The proximate and ultimate composition of the animals in different conditions as to age and fatness, and the probable composition of their increase in live-weight during the fattening process.

5. The composition of the solid and liquid excreta (the manure) in relation to that of the food consumed.

6. The loss or expenditure of constituents by respiration and the cutaneous exhalations—that is, in the mere sustenance of the living meat-and-manure-making machine.

The general plan of experimenting was as follows:

To provide data as to the amount of food, or its several constituents, consumed in relation to a given live-weight of animal within a given time, and to produce a given amount of increase in live-weight, several hundred animals—oxen, sheep, and pigs—have been experimented upon. Selected lots of animals were supplied, for many weeks, or for months consecutively, and weighed quantities of food, selected and allotted according to the special point under inquiry. The composition of foods was determined by analysis. The weights of the animals were taken at the commencement, at intervals during the progress, and at the conclusion of the experiment.

The amount, and relative development, of the different organs and parts were determined in two calves, two heifers, fourteen bullocks, one lamb, 249 sheep, and fifty-nine pigs.

The percentages of water, mineral matter, fat, and nitrogenous substance, were determined in certain separated parts, and in the entire bodies, of ten animals—namely, one calf, two oxen, one lamb, four sheep, and two pigs. Complete analysis of the ashes, respectively, of the entire carcasses, of the mixed internal and other "offal" parts, and of the entire bodies, of each of these ten animals, have also been made.

From the data provided, as just described, as to the chemical composition of the different descriptions of animal, in different conditions as to age and fatness, the composition of the increase while fattening, and the relation of the constituents stored up in increase to those consumed in food, have been estimated.

To ascertain the composition of the manure in relation to that of the food consumed, oxen, sheep, and pigs have been experimented upon.

In the case of oxen, the food and litter (sometimes with an acid absorbent) were weighed, sampled, and analysed; the animals were fed in boxes, for periods of from five to nine weeks, and the total dung produced was well mixed, weighed,

sampled, and analysed. The constituents determined in the food and litter on the one hand, and in the dung on the other, were dry matter, ash, and nitrogen.

In the case of sheep no litter was used; the animals were kept in lots of five, on rafters, through which (but with some little loss) the solid and liquid excreta passed on to a sheet-zinc flooring at such an incline that the liquid drained off at once into carboys containing acid, and the solid matter was removed two or three times daily, and also mixed with acid. The constituents determined in the food and manure were dry matter, mineral matter, sometimes woody fibre, and nitrogen.

In the case of pigs, individual male animals were experimented upon, each for periods of three, five, or ten days only. Each animal was kept in a frame, preventing it from turning round, and having zinc bottom, with an outlet for the liquid to run into a bottle, and it was watched night and day, and the voidings carefully collected as soon as passed, which could easily be done, as the animal never passed either faeces or urine without getting up, and in getting up he rang a bell, and so attracted the notice of the attendant. The constituents determined were, in the food and faeces, dry matter, ash and nitrogen and urea.

The loss or expenditure of constituents, by respiration and the cutaneous exhalations, has not been determined directly, that is, by means of a respiration-apparatus, but only by difference, that is, by calculation, founded on the amounts of dry matter, ash, and nitrogen, in the food, and in the (increase) faeces, and urine.

Independently of the points of inquiry above enumerated, the results obtained have supplied data for the consideration of the following questions:

1. The characteristic demands of the animal body (for nitrogenous or non-nitrogenous constituents of food) in the exercise of muscular power.
2. The sources in the food of the fat produced in the animal body.
3. The comparative characters of animal and vegetable food in human dietaries.

#### SUPPLEMENTARY INVESTIGATIONS.

In conjunction with the late Prof. Way, an extensive investigation was undertaken on the application of town sewage to different crops, but especially to grass. The amount, and the composition, of both the sewage and the produce grown, were determined; and, in selected cases, the composition of the land drainage-water was also determined. Comparative experiments were also made on the feeding qualities of the differently grown produce; the amount of increase yielded by oxen, and the amount and composition of the milk yielded by cows, being determined. In this inquiry part of the analytical work was performed at Rothamsted, but most of it by Professor Way in London.

The chemistry of the malting process, the loss of food constituents during its progress, and the comparative feeding value of barley and malt, have been investigated.

Experiments were commenced in 1884, and are now in progress, to determine the changes and loss which food-crops undergo in the process of ensilaging. Experiments have also been made to determine the comparative value as food—of red-clover-ensilage as against red-clover-hay-chaff and swedes, when given (with other foods) to fattening oxen; and of red-clover-ensilage and meadow-grass-ensilage as against mangels, when given to milking cows.

Although many of the results of the investigations above enumerated have already been published, a large proportion as yet remain unpublished.

Professor J. L. Budd, Benton County, Iowa, has chestnut trees, started eleven years ago, from seed, slightly dried, bought at a grocery. The fourth season they bore a fair crop, and are now six to eight inches in diameter and from twenty-five to thirty feet high.

SIR,—I have taken the FARMER'S ADVOCATE for one year, and must say that I would rather have it than any paper I have ever read. Every farmer should read it. Enclosed please find one dollar, for 1887.—R. MONTGOMERY, Roseneath.

### The Agricultural and Commercial Values of Manures and Fertilizers.

The commercial value of a manure or a fertilizer, like that of any other article of commerce, is what it will bring in the market, the prices varying with the state of supply and demand, which do not make much deviation from the average prices. This uniformity is caused by the readiness with which the demand can be supplied, and the constant availability of the raw material.

Not so, however, with the agricultural values. These present extraordinary variations, the chief cause being the lack of knowledge with regard to their application. The agricultural value represents the actual profits realized or the losses sustained by the investment. The agricultural value of barnyard manures is much more constant, as a rule, than that of the commercial article, not mainly because the knowledge of their application is more extensively diffused, but because yard manure is a general fertilizer, that is, it contains all the elements of plant food, although they may exist in very undesirable proportions for the particular soil or crop to which the manure is applied. A commercial fertilizer containing all the elements of fertility would likely have about the same agricultural value as barnyard manure.

Yard manures, as ordinarily applied, do not always produce profitable results, and hardly ever as good results as they should. They may injure the mechanical texture of some soils; the elements which the soil mainly requires may be leached or vaporized out of it, or it may contain elements which the soil is already too rich in, all of which detract from the agricultural value, although, on the whole, the results may be partially satisfactory.

But commercial fertilizers usually contain only one or two of the elements of fertility, so that the chances of their producing unprofitable results become greater, and the less fertilizing constituents the fertilizer contains the greater is the risk, which, however, can be largely obviated by a chemical knowledge of the constituents of the soil, the crop and the fertilizer. A knowledge of the chemical and physical properties of the soil also helps to avert losses that would be sustained by leakage through the soil, and evaporation into the atmosphere.

There is hardly any farm that always requires a general fertilizer, so that the keeping of a large quantity of stock to produce all manure required is a wasteful practice. There is no farmer, no matter how much stock he keeps, who could not economize by purchasing small quantities of special fertilizers to apply to his land with the barnyard manure.

#### Patrons of Husbandry.

We publish in another column extracts from the annual address by Mr. R. Wilkie, Worthy Master of the Dominion Grange. The statements should rouse every farmer to a keen sense of his duty to himself, to his fellow farmers, and to prosperity, and should indelibly impress upon his mind the imperative necessity of organized effort.

It is to be extremely regretted that there are some objectionable features in the Grange organization, by means of which it does not meet with the approval of the entire body of farmers. It has over-reached itself, and does not meet the immediate and pressing wants of the farmers. The Dominion Farmers' Council supplies these

defects. We observe with regret that the question of secrecy has prevented the co-operation of these influential bodies. Let us compare the objects of the two organizations, and leave our readers to draw their own inferences:

*Specific Objects of the Grange.*—"To develop a better and higher manhood and womanhood amongst ourselves; to enhance the comforts and attractions of our homes, and strengthen our attachment to our pursuits; to foster mutual understanding and co-operation; to reduce our expenses both individual and corporate; to buy less and produce more in order to make our farms self-sustaining; to diversify our crops and crop no more than we can properly cultivate; to condense the weight of our exports, selling less in the bushel and more on hoof and in fleece; to systematize our work, and calculate intelligently on probabilities; to discountenance the credit system, and every other system tending to prodigality and bankruptcy. We propose meeting together, talking together, buying together, selling together, and in general acting together for our mutual protection and advancement, as occasion may require. We shall avoid litigation as much as possible by arbitration in the Grange. We shall earnestly endeavor to suppress personal, local, sectional and national prejudices, all unhealthy rivalry, all selfish ambition. We shall constantly strive to secure entire harmony, good will, vital brotherhood amongst ourselves, and to make our order perpetual."

*Objects of the Dominion Farmers' Council.*—1. The cultivation of social intercourse amongst its members, and the improvement of their minds in all matters pertaining to agriculture. 2. The establishment of a social, agricultural and educational bond amongst the farmers of the Dominion, the encouragement of free, independent, and self-reliant co-operation, and the formation of farmers' clubs under the patronage of the Council. 3. The improvement of agriculture, especially those branches which receive no aid, directly or indirectly, from the public funds, the dissemination of practical knowledge and sound principles by means of essays, speeches, discussions, correspondence, experiments, etc., and the prevention and exposure of frauds upon the farming community. 4. The economical and impartial administration of such funds, property or privileges as may from time to time fall into the hands of the Council for the furtherance of the objects above enumerated.

Many of the sentiments expressed in the objects of the Grange are grand, and if its guiding principles were modernized, the objects should meet the approbation of every intelligent farmer. Secret organizations are falling into disrepute on account of their dangerous tendencies, and the burdening of officers with high-sounding titles is a relic of superstition. We hope the Grange will note the objections to its order, and endeavor to bring themselves more in harmony with modern agricultural thought and the more urgent wants of the farming community.

Swamp muck is of exceedingly great value. The fertilizer manufacturer has no monopoly of the use of figures, and if we use them as he does, a farmer can just as easily and truthfully figure out a good bed of peat to be worth \$5,000 an acre. A cubic yard of it air dried, will weigh 1,000 pound. If of ordinary good quality, it will contain one percent of nitrogen, which the fertilizer man values at, let us say the very moderate estimate—for him—15 cents per pound. This makes the 1,000 pounds of muck worth \$1,500. In one acre of bog, three feet deep, there are 4,840 cubic yards. This figures up to \$7,260 for the acre. What fault can the fertilizer man, or chemist, who analyzes leather scrap, dried flesh, and wood waste for its nitrogen, and sells it for 16 to 20 cents a pound, find with these figures.

Pumpkin seed are very attractive to mice, and traps baited with them will soon destroy the little pests.

### Stock.

#### A Chatty Letter from the States.

[From our Chicago Correspondent.]

Chicago received more cattle and sheep the past year than ever before. A large share of the cattlemen are working to get Congress to make a gigantic appropriation to fight cattle diseases. Disease and rumors of disease, especially rumors, have cost the country many millions of dollars the past year.

The question of establishing a producer's stock yards at St. Louis is being agitated by some of the western range papers. They claim that the established yards are run too much in the interest of middlemen.

Among the December sales in the open market were 23 Polled Angus steers, 1,402 lbs., at \$5.50, sent in by J. J. Rodgers, of Abingdon, Ill.

The low prices for grade bulls are causing breeders to castrate many Angus and Hereford bull calves, and hence it is becoming more common to see bullocks of these breeds in the open markets. Yearling and 2-year-old Hereford grade bulls are selling at \$35 to \$50 per head, which is quite a come down from the boom prices.

Cattle are now selling a shade higher than a year ago, and hogs and sheep are selling 50 percent better.

All the indications seem to point to a revival of activity and confidence, and, above all, better prices for live stock during the earlier part of the new year. No boom is looked for or wanted, but there is good reason to believe there will soon be a substantial improvement in prices for live stock and farm produce. An improvement would have been realized during the past year but for the unfortunate labor demonstration. Already prices are on the mend, though cattle are yet extremely low. During December hogs and sheep sold much higher than a year ago.

A bad winter on the plains will ruin, completely ruin hundreds of ranchmen who are just now barely able to hold their heads above water. Grass is generally short and the cattle will die by the tens of thousands if the snows are deep and lasting.

The leading ranchmen of Wyoming now think the time is not far distant when they shall have to irrigate in order to produce grass enough to make the business profitable. The chief trouble lies in the fact that they can neither buy nor lease the Government lands in large tracts.

Swine breeders rejoice. Prices for their products have been about 50 percent higher than during December, 1885, with prospects of still better things to come. There is a great deal of sickness among the hogs, but farmers are not losing anything like as many as last winter. One reason is that in many localities they have not the hogs to lose.

So great were the losses of some last winter and spring that a good many farmers are feeding unground corn to cattle without having pigs to follow. This is highly extravagant, as about one-third of the value of the corn thus fed is lost. Feeding whole corn in the ear and on the ground as many do, is a most extravagant practice, anyway. One effect of the pleuro-pneumonia scare in the Chicago distilleries will be to do away with distillery milk and the feeding of old cows in such places. The managers say they will only feed steers and bulls hereafter. This is a good

thing, because swill milk from cows housed in close, dark, damp sheds, cannot be wholesome, no matter what the doctors say.

It would be just as well for the good of the people at large if distillery feeding were completely reformed, or done away with entirely.

Col. J. W. Judy's son, Mr. C. C. Judy, of Tallula, Ill., sent in 20 head of 1,377-lb. yearling Shorthorns, which sold at \$5.50. At the same time he marketed some 1,750-lb. "coming fours" at \$5.30. Some of the oldest and best feeders in the States, however, still believe that a beef bullock cannot reach his best short of three or four years.

#### The Government Fat Stock Show.

This exhibition took place in Guelph on the 9th and 10th ults. The display of cattle was not equal to that of the former shows, but there was a good collection of sheep and hogs. The practice of over-feeding and of keeping high-fed matured animals from year to year merely for exhibition purposes seems to be dying out. This is a movement in the right direction, and should it continue, there is a possibility of these shows being placed on a satisfactory footing.

The attendance, however, was very meagre. The curiosity is dying out, which must lead to a change of programme, if the show is to be continued. We observe with regret that the Council of the Agricultural and Arts Association is asking for increased Government expenditures in order to keep the concern artificially propped up.

The Christmas fair was also meagrely attended, and, with few exceptions, the cattle offered for sale were only of medium quality, the prices ranging from 3c. to 4½c. per pound. Choice Christmas beef brought 10c. to 12c. Wm. McQuarrie sold 92 lambs for 5½c. per pound, and Jas. Laidlaw sold 200 for \$5.75 per head. Mr. James Taylor sold 17 lambs at 5c. per pound. A number of the buyers present were from a distance, and quite a quantity of stock changed hands.

#### Meeting of Shorthorn Breeders.

A special meeting of a branch of the Shorthorn breeders who felt aggrieved at the action of the Dominion Shorthorn Herdbook Association in excluding from registration a large number of pure Shorthorns, was held in Guelph on the 8th ult. The meeting was called by J. and W. B. Watt, J. Fothergill, W. G. Pettit, J. and R. McQueen, and D. Talbot, who suffered loss from the exclusion of the bull "Roger," and the object was to consider what action was most advisable under the circumstances.

The meeting was not a secret caucus, and a large number of the members of the Dominion Shorthorn Association and other breeders were present. The question was discussed from every standpoint and by all the factions concerned, and in general, a good deal of harmony was manifested.

Mr. J. J. Hobson was moved to the chair. In explaining the object of the meeting, he stated that it was claimed that the rejected stock was eligible for registration in the Dominion Book according to the rules of the Association.

Mr. W. G. Pettit said that the rejected stock should be admitted for registration unless substantial reasons be shown for their exclusion. Some of the best stock in the Province was excluded. The burden fell upon the Dominion Association to prove that Roger's pedigree was a forgery, which would be difficult to do after the

lapse of 70 or 80 years, many of the witnesses now being dead. He produced a letter from the Secretary of the American Shorthorn Herdbook Association to show that there was no doubt of Roger being traceable to the importation of 1817, that the pedigrees were accepted by the early Kentucky breeders, else they would never have been recorded, and that he (the Secretary) could not comprehend why they should be excluded by Canadian breeders. He (Mr. Pettit) considered that the action taken by the Association was the offspring of jealousy. He contended (1) that the burden of proof fell upon the Association, and (2) that the stock was eligible for registration by the constitution of the Association. In support of the latter statement he quoted section 10 of the constitution, which burdened the Secretary with the duty of sending "timely notice" to breeders of stock whose pedigrees were affected, and he had not received such notice.

Robert McQueen contended that the Association established a standard to suit themselves. He laid great stress on the fact that no breeder objected to the British American standard, as each felt confident that his stock would have been eligible for registration in the Dominion Herdbook, and would therefore have voted without hesitation for the adoption of the same standard in the Dominion Herdbook; for it was not known amongst the breeders at that time that the same standard, if strictly followed, would lead to the rejection of such a large number of the best stock in the country. Every breeder considered his pedigrees safe. Many of the breeders did not, therefore, consider it necessary to attend the meeting, and if they had done so, the vote would have been unanimous in favor of adopting the British American standard for the Dominion Herdbook. He contended that the Dominion Association should prove the pedigrees to be wrong; it was not the duty of the other party to prove them to be right, as they were recognized by the Shorthorn breeders of Canada and the United States. He contended that Canadian-bred stock with 8 or 10 crosses were superior to imported stock. Since his letter appeared in the *ADVOCATE*, he had received many communications, even as far as Manitoba, urging him to call a meeting and take decisive action.

Chas. Drury, M. P. P., argued that Mr. Pettit and Mr. McQueen put the burden of the proof on the wrong shoulders. The Dominion Association appointed a revising committee to test the pedigrees, and the matter was in their hands. If this committee found a missing link, it devolved upon the owners of such pedigrees to supply the deficiency. He had not always been in sympathy with the Dominion Shorthorn Association; his sympathies went with the farmers and small breeders. As a member of the Council of Agriculture and Arts, he pleaded for the masses, and advocated the lowering of the standard in order to put ordinary farmers in the position of securing superior stock at reasonable prices; but he made every concession in the cause of harmony and for the purpose of reducing the number of herdbooks to one. He was present at the Toronto meeting when the Roger pedigree was discussed, and every opportunity was given to the affected parties to establish their claims. He was as anxious as anybody to see the Roger pedigree proved, but the revising committee decided that Roger did not come up to the standard. Secretary Wade had corresponded with parties in the U. S., but failed to secure the necessary evidence

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There was no substantial evidence to prove that the cow from which Roger was said to have descended ever crossed the Atlantic, and private records were not reliable. The conveners of the meeting should not cast reflection upon the revising committee; it was their duty to "hew to the line," and if the standard adopted in the constitution was not satisfactory or just, the power to change it was vested in the Association. No matter how superior the individual merit might be, this argument had no force under the constitution in making the animal eligible for registration. But nineteen-twentieths of the breeders rejected his views when he pleaded for the men of small means and for the standard of merit instead of that of long pedigree.

Mr. D. Talbot strongly emphasized the fact that the Dominion Herdbook was not established on sound principles, and could not, therefore, stand, but must, sooner or later, collapse again.

Mr. James McQueen strongly denounced the action of the Association, and cited instances in which he had obtained higher prices for his rejected Roger stock than had been obtained for stock registered in the Dominion Herdbook. He cautioned breeders to beware of the "ring," and wagered that he could beat their "scrubs" anywhere with his Roger stock and five-cross bulls.

Prof. Brown said that all the cattle in England were practically thoroughbred, and many herds were not registered at all. It was not necessary to register an animal to make it thoroughbred. The rejection of so many animals that did not come up to the pedigree was a national wrong. There were hundreds of other breeders affected as well as the owners of the Roger stock. There was plenty of native-grown stock having 15 or 20 crosses that was just as good as the imported article.

James Laidlaw said that if the four-cross standard was adopted in the English Herdbook, the merits of the Dominion Herdbook were thrown to the winds. If our Shorthorn Herdbook admitted four English crosses, surely it ought to admit eight or ten crosses of our native-grown stock.

Henry Wade explained that four crosses were eligible for registration in the English Herdbook, but no cases were reported in which such registrations had been made.

John Hope, Bow Park Farm, was called upon by the Chairman to state his experience in English thoroughbred stock. He stated that he had taken no part in the question, but was very sorry that the spirit of disunion had manifested itself. The seceders had acquiesced in the action of the Association, and it was now in bad grace for them to kick against the researches of the revising committee which they aided in appointing to act for them, seeing that the Committee had done all in its power to count the Roger stock in. The breeds in different counties in England were known to be kept distinct for a period of 80 or 100 years, and were as thoroughbred as registered animals. In the respective localities there was no use in registering such stock, the price not being enhanced thereby, and although they comprised some of the best herds in England, they could not be exported without pedigrees, there being no demand for unregistered stock. Several unavailing attempts had been made to get these animals registered in the English Herdbooks. Canadian breeders had nothing to fear from four-cross importations, as the cost of transportation was as great as that of thoroughbreds,

and low grade stock would not bring remunerative prices.

After a lengthy discussion, the following committee was appointed, to meet the Association at their next annual meeting, to be held in February, for the purpose of endeavoring to secure a modification of the rules of constitution objected to: G. Pettit, Robert McQueen, Daniel Talbot, Thos. Waters, Wm. Donaldson, Jas. Laidlaw and James G. Wright.

#### Origin and Purpose of the Cleveland Bay Horse.

The origin of this breed, which is rapidly coming to the front, is involved in obscurity, and much speculation exists relating thereto. The more ancient name was the "Chapman horse." Some writers, basing their remarks on the fact that the ancient Romans painted and sculptured their horses in similar type, contend that the Cleveland Bay is a descendant of the Roman war horse. Others pretend to trace it to the aboriginal breed of Britain. It is an historical fact that the aboriginals were very powerful, active, and well trained horses, and we find Julius Cæsar, in his commentaries of the invasion of Britain, state that the very terror of these horses threw his choicest legions into confusion. Prof. Lowe, of Edinburgh, makes the following allusion to this breed:

It is the progressive mixture of the blood of horses with higher breeding with those of the common race which has produced that class of coach horses usually termed Cleveland Bay, from the prevailing color derived from approximation to the superior races, and Cleveland, from the fertile district of that name situated in the North Riding of Yorkshire, on the Tees. About the middle of last century this district became known for the breeding of a superior class of powerful horses, which, with the gradual disuse of the heavy old coach horse, became in request for coaches, chariots, and similar carriages. The breed is not, however, now confined to the district of Cleveland, but is cultivated throughout all the great breeding district of this part of England, although Cleveland still preserves its pre-eminence, and supplies with stallions those districts of the kingdom where superior coach horses are reared.

The true Cleveland Bay may be justly termed a breed from the similitude of characters presented by the individuals of the stock. It has been formed by the same means as the hunter, i. e., by the progressive mixture of the blood of the race horse with the original breeds of the country. But a larger kind of horse has been used as the basis, and a larger standard adopted by the breeder. By coupling a race horse with a draft mare, an animal will be produced partaking of the properties of both parents, and which may be employed as a coach horse. But the results, as we before observed, of such a mixture are uncertain, and the progeny will probably be wanting in just proportion of parts. Many carriage horses are doubtless produced in his manner, but many of them, if their history were told, have been found to be worthless. To rear this class of horses the same principles of breeding should be applied as to the breeding of the race horse himself. A class of mares, as well as of stallions, should be used, having the qualities sought for. It is in this way only that we can form and perpetuate a breed in which the properties of the parents shall be reproduced in their descendants. The district of Cleveland doubtless owed the superiority which it continued to maintain in the production of this beautiful race of horses, to the possession of a definite breed, formed not by accidental mixture but continual cultivation.

Other authorities state that the breed has been produced by crossing the thoroughbred with the draft mare; but this is improbable unless the breeding had been systematically

carried on for a great length of time, and even then the endurance of the Cleveland Bay could scarcely be attained.

Mr. Lloyd gives the following description of the Cleveland horse: "He should be 16: 1 to 16: 2½ in height, should be possessed of good sloping shoulders, a short back, powerful loins, and long quarters. His head is rather plain than otherwise, and on the large side, but it is well carried, and his general appearance denotes activity and strength combined in a manner not seen in any other breed. His action is not remarkably high, but it is the kind of action for getting over the ground. In color he is bay—either light or dark—with black legs clear of hair, and black, zebra-like stripes on the arm and above the hock are sometimes seen. These are known as the black points, and are supposed to denote especial purity of breeding. White, save a small star, or a few white hairs in heel, is not admissible, a blaze or white foot proclaiming at once the admixture of foreign blood."

The Cleveland Bay surpasses any other breed as a general purpose horse, and his docility, strength and endurance admirably qualify him for artillery purposes.

#### Feeding Horses.

The question of feeding horses is now receiving a good deal of attention, and the experiences of the best feeders are being compiled. The quantity of nutriment to be obtained in a given bulk of food is also being discussed, as well as the quantity and bulk for horses of different weights and for different classes of work. Dr. Fleming, Principal Veterinary Surgeon of the British Army in his "Practical Horse Keeper," makes the following observations:

For the largest-sized draught horse which performs steady hard work for a number of hours every day, 18 lb. of hay, and a small proportion of straw, cut into chaff, with 18 lb. of oats, and a pound or two of beans or peas, is reckoned a fair allowance. Reynolds states that the weight of dry food absolutely consumed by an average-sized, well-conditioned cart-horse, moderately worked, regularly fed, well housed, and supplied with diet of good quality, is from 29 lb. to 34 lb. daily, of which the hay and straw should constitute about two-fifths. However nutritious the food may be, less than 29 lb. will not suffice to maintain the organs in healthy action. In a stud of cart-horses which he managed, the following was the daily allowance:—Indian corn, 10 lb.; Egyptian beans or Canadian peas, 5 lb.; oats, 2 lb.; oatmeal and linseed, 1.3 lb.; bran, 2.1 lb.; hay, 10.6 lb.; roots and grass, 3 lb.

Maize, beans, or peas, with bran and cut hay, formed the basis of the usual food allowance. The oats and linseed were used only for sick or delicate-feeding horses. The oatmeal was made into gruel, of which each horse was allowed a drink on coming to his stable when the day's work was completed.

The roots and grass were given during the months it was considered advisable to use them. In autumn or winter the corn was bruised and given raw, except a night feed of steamed food three or more times a week. In spring and summer the grain was steamed, but an occasional meal of dry food was allowed as a change. A further change both in the proportion and quantity of the grain given was also frequently made, as conditions of weather or work appeared to indicate, but the autumn allowance was always the most stimulative. The bulk of the hay was given in the form of chop with the corn, two or three pounds only being given in the rack the last thing at night. In quality the best obtainable clover hay was used. A small quantity of straw was sometimes chopped with the hay. The horses were of average size, moderately worked at equable and regular labor every day (25 per cent. were also worked for about three hours each Sunday morning), and their condition was good. Another large company employing a number

of horses performing very hard work, drawing heavily laden drags, allows forage per diem as follows: Hay, 16 lb.; oats, 10 lb.; beans, 5 lb.; maize, 4 lb.; bran, 2 lb.; total, 37 lb. The hay is all chopped, and the grain crushed separately; then the whole mixed together. Every Saturday night each horse is given a mash of linseed, mixed with a small proportion of bran, boiled all together and given warm. When the work is less, less grain is given.

For smaller horses undergoing regular, but hard, work within a brief space—such as omnibus or tramcar horses—a less allowance of food is, of course, given. The following is the diet allowance per day of the principal tramway companies in the United Kingdom. It may be observed, however, that this allowance varies according to the price of forage in the market, and also sometimes according to the season.

SCALE OF FEEDING OF VARIOUS TRAMWAY COMPANIES' HORSES IN THE UNITED KINGDOM.

| City               | Maize | Oats | Beans | Hay | Straw | Total |
|--------------------|-------|------|-------|-----|-------|-------|
| North Metropolitan | 13    | 8    | 1     | 1   | 7     | 29    |
| London             | 10    | 8    | 1     | 1   | 7     | 27    |
| London Street      | 12    | 8    | 1     | 1   | 7     | 29    |
| South London       | 10    | 8    | 1     | 1   | 7     | 27    |
| Birmingham         | 10    | 8    | 1     | 1   | 7     | 27    |
| Liverpool          | 12    | 8    | 1     | 1   | 7     | 29    |
| Manchester         | 15    | 8    | 1     | 1   | 7     | 32    |
| Glasgow            | 11    | 8    | 1     | 1   | 7     | 28    |
| Edinburgh          | 10    | 8    | 1     | 1   | 7     | 27    |
| Dublin             | 10    | 8    | 1     | 1   | 7     | 27    |
| Total              | 120   | 80   | 10    | 10  | 70    | 280   |

It is a good plan to vary the diet now and again, such as giving a bran or linseed mash once or twice a week. An important question arises when treating of the quantity of the food a horse should receive, and that is with regard to bulk. Attempts are made from time to time to feed horses on concentrated food, with the view of securing facility of transport; but it is forgotten that a certain degree of bulk is necessary in all food, in order that the digestive organs may perform their functions properly. During working time food of less bulk may be given, such as oats, as it interferes less with the breathing organs, and is more rapidly consumed; but a certain amount of bulk the horse must have at some time or other, and the best time for giving this is at night.

**Blinding and Shoeing Horses.**

Put yourself in his place! If a man were blindfolded and led into the whirl or din of a factory or machine shop, with the whirring of wheels, the crashing of trip hammers, the hissing of steam and the many other evidences of danger, he would very naturally desire to have some use of his own eyes, and be unwilling to trust wholly to his leader. Is it not so with a horse, which has instincts and sagacity almost, if not quite, equal to human reason, when his sight is obscured by blinders, and he is driven in crowded streets or past locomotives or moving cars? Certainly it must be, and no wonder these animals become frantic with fear when some unusual noise, the cause for which they cannot see, bursts upon them, and dash away blindly and bring trouble upon their drivers. Therefore I never use blinders, and trust a good deal to the

common sense and discretion of my horses—and hitherto with perfect safety. The past season I tested the question of shoes or no shoes upon horses going upon rough, stony mountain roads. The mare I have been riding used to stumble frequently before the shoes were removed, but since then has never made a misstep. The hoofs are not suffering, but are improving in shape, wearing on the rough roads keeping them in better form than the blacksmith's paring knife. Another horse occasionally make a few stumbles when trotting over the rocks and roots in the roads, and he has cost me for four sets of shoes since the test began. Even in this rough country I begin to think shoes can be dispensed with with advantage. The cows and working oxen which are passing continually over the roads, feeding upon the sides of them and working upon them, are never shod, and why should horses be? This seems to be a reasonable deduction.—[Cor. New York Tribune.

**The Shorthorn Herdbook.**

The facts brought to light at the meeting of the Shorthorn breeders, reported in another column, should make a profound impression on the mind of every farmer who has the welfare of the country at heart. In principle, the question is a struggle between national progress and selfishness in one of its basest forms. Prof. Brown deserves the gratitude of the farming community for his bold advocacy of the question from a national standpoint in the face of such fearful odds. We shall heartily co-operate with him in any rational scheme he may adopt for the furtherance of his views. His sentiments are strengthened by the fearless speech delivered by Mr. Chas. Drury, M.P.P., and member of the Council of the Agriculture and Arts Association. Mr. Drury reviewed his policy in reference to the herdbook question, and his views were strictly national. By reducing the standard to a certain limit he contended that farmers and small breeders were enabled to procure first-class stock, having all the desirable points, at reasonable prices. This is the essence of the question from a national standpoint. The best authorities assert that a four or five cross is sufficiently thoroughbred for all practical purposes. Nationally, the tracing of a pedigree back to imported stock is an act of madness, and can only be defended on grounds of pure, unadulterated selfishness. Any insinuation about "rings" was cried down at the meeting. Granting that none of the breeders desired to move within rings, the results will be just the same; farmers will be governed by the effects, not by the intention. By the proposed standard of the Dominion Herdbook, breeders may secure fictitious prices for their stock from the Americans who are controlled by impulses, but what our farmers want is access to such stock at prices based upon the intrinsic merits of the animals, which are not enhanced by the fact that the ancestors were imported. Prices of thoroughbred stock have greatly depreciated during the past few years, owing partly to excessive speculation and partly to increased knowledge as to the real merits of the breeds, and an effort, which culminated in the establishment of the Dominion Herdbook, has been made with the view of regaining this lost position. But, as one of the speakers justly remarked, the scheme will again end in disaster because it is established on false principles.

We exceedingly regret that the breeders who called the meeting—those who suffered loss by

their stock not being eligible for registration in the Dominion Herdbook—also failed to contend for a just and national principle. These are honorable men whose word we do not call in question, but they failed to give the subject sufficient consideration. They contended for the registration of the bull Roger, through which they suffered loss. If they had also espoused the cause of their fellow-sufferers whose loss was sustained through the rejection of other valuable stock, they would have won the support of our farmers and small breeders, and would have therefore been better able to defy the action of the Dominion Shorthorn Association. But they sacrificed a national principle for the sake of a bull, and it will be hard for them to retrieve their lost position. Our sympathy with the suffering breeders is strong, particularly so for the sake of our farmers and small breeders, and if they will unite on a national principle, we believe they will succeed against all opposition, including government expenditures, and they may be assured of our support as well as the confidence and respect of the farming community.

**The Value of Bran as Food and Manure.**

There is no product of the farm which can be turned into such profitable account as bran. We have heard the question asked, If bran is such a valuable food for beasts as is claimed for it, why is it not allowed to remain in the flour and be eaten by human beings? This is a very pertinent question, indeed, especially when it is considered that bran is medicine as well as food. One of the best answers we have heard is that millers and machine makers would have little to do if the complicated machinery for separating the bran from the flour were abolished. We once heard a miller argue that bran irritated the human stomach so much that it was necessary to separate it from the flour. We told him that we never felt or heard tell of such effects, and that he must have reference to city invalids.

A practical stock-feeder recently informed us that he considered wheat bran so rich that he could fatten steers profitably on bran and straw. This gentleman makes profits on stock-feeding without counting the manure or having to charge the food consumed at cost of production prices. This decision is backed up by the chemical composition of bran, and its digestibility is at least equal to the average of other foods. With regard to its most nutritive constituents, it compares favorably with lean meat, but is more digestible. Both are very rich in mineral matter and in nitrogen, so that bran is to stock what meat is to human beings. Meat has no medicinal qualities, like bran. Bran is a very concentrated food because it contains a large amount of nutriment in a small bulk. It has much bone and muscle forming constituents, and is, therefore, conducive to the growth of young stock, if fed judiciously with other foods.

We were recently asked by a practical and progressive farmer if we would recommend the feeding of bran to stock in place of using commercial fertilizers. A very sensible and practical question, indeed. We told him that bran manure was very rich in commercial fertilizers, and advised him to buy all the bran he could afford to pay for, and use, besides, all the fertilizers that he knew how to apply with profit. The bran fertilizer is a general manure, so that if the land requires a special fertilizer, much bran can be saved and the savings

spent in the purchase of the fertilizers required. The profit in feeding bran depends largely upon the quantity of the rich manure saved from waste.

#### Care of the Feet of the Horse.

The foot is one of the most important and complicated members of the horse economy; moreover, it is a member more liable to injury and disease than any other part of the animal. And yet how many of the readers of the *Rural* are there that ever give any special attention to the condition and care of their horses' feet? Many appear to believe that the only attention the feet of a horse require is to be re-shod whenever a shoe becomes loosened or lost, whether it is in one or six months.

While bad shoeing is undoubtedly the most prolific cause of diseases of the feet, due largely to the deplorable condition of our present farrier system, still there are many other matters in the care of the feet that every farmer can and ought to look after. Through this carelessness and inattention, and I may say ignorance, especially on the part of the average farrier, more horses are either blemished, permanently injured or ruined than by any other method. An occasional systematic inspection of the feet and limbs should be made, to see that they are being kept in the proper healthy condition. This will enable the owner to discover any slight injury or disease in the earlier stages, when treatment is comparatively simple, and recovery much more certain. It will also cultivate a habit of observation that will be invaluable to every horse-owner.

Whether at work or standing idle, all dirt and manure collecting in the shoe should be daily removed, preferably at evening, with a blunt-pointed iron instrument. If allowed to remain it dries, retains or increases the heat of the foot, and tends to drying and brittleness of the sole. During the winter there is very little danger from drying and contraction, but during the heats and droughts of summer the danger is greatly increased. Horses that are constantly kept on dry roads, or paved streets, or dry stables, are quite liable to suffer from over-drying. Simple contraction, however, must not be confounded with the contraction which so frequently results from various diseases of the feet. The former occurs only occasionally, but the latter very frequently. One of the most common causes of contraction from drying is the prevailing custom of farriers to mutilate the hoof by excessive rasping and paring. In their opinion, an animal is not properly shod unless a large part of the surface horn—the great safeguard against excessive drying—is removed. The progress of contraction can very readily be seen by observing the heels and frog. As contraction goes on, the heels approach each other—"turn in"—and the frog becomes dry, hard and diminished in size. An excellent method is to keep accurate measurements of the feet, taken when they are in good condition. These can be used as a ready means of comparison, and will indicate the degree of contraction at any time.

Wetting the feet frequently, especially when heated, while answering a very good purpose in many cases, is a questionable practice. Better to allow the horse to stand for several hours daily for a few days in a puddle of clay or a water-bath just deep enough to cover the hoofs. Turning the horse on a wet pasture for several days, pasturing at night, or even for a few hours in the morning where there are heavy dews, are all beneficial. It must not be forgotten that after

such soaking or moistening, the hoofs are, for a time, even more susceptible to drying influences than before; so that to counteract this tendency, a suitable hoof-ointment should be repeatedly applied after the soaking. These hoof-ointments can very frequently be employed to advantage to prevent excessive drying, not only after soaking, but whenever the hoof is drying from other causes, and especially after the hoof has been unduly rasped by the farrier. An excellent simple ointment for this purpose is a mixture of equal parts of the best pine tar and vaseline, to be applied daily as long as required. A horse should not be allowed to stand on or near heating manure, in urine, or on any decomposing substances. It injures the quality of the hoof, rendering it dry and brittle.

In recent bruises, pricks, strains, or other injuries to the feet where inflammation is liable to result, cold water is one of the best of applications to keep down the inflammation. Loosely fasten a piece of old blanket or sacking about the injured foot, and keep it saturated with cold water until the inflammation is reduced. In very severe cases, or in those not promptly attended to, a warm poultice may be more soothing.

Rest is an all-important part of the treatment. If this is neglected, and the animals kept at work, or if it is not promptly and properly treated, structural changes may soon occur, which will render the case very difficult to cure, or perhaps altogether incurable. Too much importance cannot be given to the *early*, proper care of all injuries and diseases of the feet. Rest, without treatment, is usually better than treatment without rest, but to secure the best results the two must be combined.

In the case of strains or sprains, the animal should be allowed to rest for several days, or in severe cases for several weeks, after an apparent complete recovery, otherwise a return of the lameness in an aggravated form frequently results. In all cases of wounds that are discharging, a free opening should be made for the discharge of the pus; the cavity should be thoroughly swabbed out with some astringent antiseptic wash (as sulphate of copper or zinc, carbolic acid, etc., one dram in a pint of water), and dressed with tar. Perfect cleanliness should be observed; all wounds should be carefully cleaned and the foot bandaged, when necessary, to retain the dressing and keep out the dirt. During the enforced rest the animal should be kept on a restricted laxative diet; when again put to work, it should be gradual, until there is no danger of a recurrence of the injury.—[Dr. F. L. Kilborn, in *Rural New Yorker*.

#### The Effects of Age, Exercise and Other Influences on the Production of Milk.

There is a period in every cow's life when she reaches the height of her milk development. This age varies with the breed, the individuality and the care, but usually after the sixth or seventh calf, if she breeds regularly, the flow begins to decrease; early mature, early decay. But the effects of age upon the quality of the milk have not been investigated with satisfactory results. There is also little definitely known as to the effects of sexual activity on the yield of milk. It often happens that the flow perceptibly decreases when the cow comes in season, but increases all the more afterwards; the milk then also being in an abnormal condition, as will be

observed in skimming, churning and cheese-making. These peculiarities, however, are usually the exception and not the rule. One instance is recorded in which the milk of a cow in season showed a specific gravity of 1,0983—the normal specific gravity of milk is 1,0315—and the percentage of solids rose to 14.78.

The spaying of cows has a peculiar influence on the secretion of milk, as they keep up the flow long after they would otherwise go dry. Some cows have been known to remain in milk several years after ceasing to breed or being spayed.

Exercise in the fresh air, by increasing the general health of the cow, is favorable to increased milk production. This duty should never be neglected. In some countries cows are made to do light work, which has a beneficial influence in the production of milk; but in such cases extra food must be given, and the work must not be straining. Immoderate exercise or work diminishes the flow, decreases the percentage of solids, especially the fat, and the milk becomes abnormal—such as being curdled by heat.

The temperature of the stable should be kept normal, about 48 to 50 degrees. A low temperature is wasteful of the extra food consumed, while a high temperature disturbs the organs and the milk vessels, causing them to relax, which acts injuriously to the production of milk. Proper ventilation must also exist.

The condition of the weather has also a peculiar effect on the yield of milk, especially sudden changes, when the cow is on pasture. Meteorological conditions produce less marked effects when the cow is stalled. During raging storms cows have been known to fall off very suddenly in the quantity and quality of their milk.

Prof. Knapp, in the *Iowa Homestead*, says:

"Clover is a wonderful feeder; it greedily devours barnyard manure and ashes, and has a special liking for gypsum. As a grain food it is not necessary to find a better. Placing a bunch of red clover, when about seven or eight inches tall, beside a similar bunch of alfalfa, orchard grass, Italian rye-grass, etc., and allowing cow, sheep and pig to decide the question of relative palatability, in every case the pig and sheep took the clover first, and in most cases the cow did the same. An acre of good clover will produce in one season twelve tons or more of green food, containing two and two-fifths tons of dry matter, equal to ninety bushels of corn, and more than its equivalent for food. Red clover when young has a nutritive ratio of one to two, which shows that it is nearly equal to oil-meal for growing young animals. As the plant approaches maturity the water, the ash, the fats and the albuminoids decrease, and the carbohydrates and crude fibre increase till in full the nutritive ratio is one to three—excellent food as hay, but not so strong in flesh-forming material as earlier."

Of the 83 horses for the Imperial Army, purchased in Canada by Col. Ravenhill, 80 arrived safely in England, and were inspected by a large assemblage of military authorities. Great satisfaction was expressed at their appearance. The Colonel stated that he could not obtain the 1,000 suitable horses in Canada without great difficulty and delay, owing to the fact that large numbers had been shipped to the North-west ranches, and Canada was not yet prepared for such drafts from its horse markets.

An American writer thinks that the U. S. Government should be protected from the "veterinary experts."

**A Big Pig-Problem.**

Much has recently been said and written about swine diseases, and many investigations have been made with reference to causes, preventions, and remedies. Wise-heads are now beginning to see the drift of the whole affair, and are fearless in the expression of their opinions, no matter what the consequences may be.

It has been repeatedly pointed out by interested speculators what rapid progress has been made in domesticating and improving the hog; fine illustrations are published showing not only the great skill of the breeder, but also the marvellous genius of the artist. The defects of the breeder in producing an animal that looks something like a huge barrel with a long, crooked cork in one end, are rectified by the skill of the artist, and then a contrast is drawn between this thing and the wild hog, showing what great improvement has been made within so short a period of time. It is natural that the hog should have been selected as the victim, for he readily responds to generous treatment, and is the most profitable consumer of farm produce. Eating all sorts of refuse, he is a profitable consumer; maturing early and growing rapidly, he makes quick returns, and he is easily domesticated.

But what have been the results of taking this advantage of his extreme flexibility?—all this high stuffing, all this greed for still earlier returns? Disease, discouragement, death! The constitution of the hog has been ruined, the muscular system has almost entirely vanished, diseased fat produced which nobody wants to eat—all for the sake of breeding and feeding a perfect (!) animal (according to the estimate of the best judges) and for the purpose of obtaining boom prices for the manipulators. These conditions are specially characteristic in those sections where corn is produced so cheaply that it is only fit for the hog to eat.

But lo! what next? His carcass comes into competition with the dairyman in the production of pure, gilt-edged dairy butter of the delicious flavor of the drug store and the keeping qualities of a basswood ham. But if this were all, it would scarcely be worth mentioning. What next? Experiment stations must be established all over the country, with headquarters at Washington (Ottawa?), for the purpose of investigating the causes of the diseases. An efficient staff of "vets" must be appointed by the Government to scour the country for diseased hogs, with power to slaughter any farmer's hogs who opposed their appointment, and if their occupation feels likely to be gone, all they have to do is to get up a hog-disease scare, by means of which it is a part of their duty to complain of overwork and to receive more pay. If this were all, nobody would think of complaining. What next? Veterinary literature must be broadcasted over the country at the people's expense; agricultural and veterinary colleges must be endowed, and millions must be spent in inducing farmers' sons to attend these institutions, for their stock is in danger, and the number of "vets" in the country is not equal to the demand. Some ambitious veterinarian writes a text book for the students of these institutions, teaching them how to treat diseases which result from the practice of stuffing hogs and other domestic animals to please the eye of judges. In this way science keeps pace with the improvement of the hog, and there is nothing like science for the

practical farmer. Other domestic animals are following in the same train with the improvements of the hog—"the gentleman that pays the rint" in Ireland.

All these millions could be saved by doing what? Simply doing nothing. The majority of farmers learn moderation without teachers or Government interference. They learn that hardiness and consequent development of the muscular system are the healthful and staying qualities of farm stock, which very qualities are in demand by the consumers of flesh. Such qualities are induced by discarding those petty little fancy points in breeding by selecting healthy breeding stock of activity and vigor, the pedigree without these qualities being regarded as injurious. Give the animals clean, healthful quarters of medium temperature, give exercise and a change of diet, not forgetting plenty of grass and other succulent food for the hogs. Substitute common sense for college "learnin'."

We will not say anything about the millions of dollars that are annually thrown away for useless quack medicines for fear we will increase the effects of the other indictments to such an extent that it will cause a panic amongst the manipulators.

**Feeding Hogs for Lean Meat.**

We do not make the practice of publishing the results of experiments conducted at the various experimental stations until they have become sufficiently numerous to prove definite results, as a few experiments are apt to mislead unless accompanied by a caution that they are not intended to prove the objects to be attained. There are other experiments which we would not publish under any consideration, as they are based on false principles, and, being initiated by manipulators, they are intended to mislead the farmers and thereby fill the pockets of scoundrels who live by such practices. There are other useless experiments which lead in the wrong direction, some proving such things as should not be proved, such as feeding to see what can be done in the production of live stock monstrosities which make hot-beds for disease, while other experiments are intended to settle some vexed question in science, and will not be of practical use for many years to come.

On previous occasions we drew attention to the experiments of the indefatigable Prof. Sanborn, of the Missouri Agricultural College, who is intent upon determining the effects of food rations in the production of fat and lean pork. Such experiments deserve encouragement, for they will tend to counteract the abominable practice of feeding stock to please the show judges instead of the consumers of meat. Prof. Sanborn's first experiments in this direction tended to prove that fat or lean could be produced at pleasure, according to the quality of the food consumed, and more recent experiments have confirmed his first deductions.

In a recent trial he fed corn, blood and middlings (shipstuff), the food being analyzed and giving the following composition:

|                              | Corn.<br>Per ct. | Blood.<br>Per ct. | Shipstuff<br>Per ct. |
|------------------------------|------------------|-------------------|----------------------|
| Moisture                     | 10.43            | 20.78             | 15.20                |
| Ash                          | 1.57             | 6.65              | 3.65                 |
| Fat                          | 4.51             | 2.14              | 4.41                 |
| Carbohydrates (undetermined) | 74.39            | 2.87              | 57.99                |
| Crude fibre                  | 1.92             |                   | 2.62                 |
| Nitrogen                     | 1.15             | 10.81             | 2.58                 |
| Albuminoids                  | 7.18             | 67.56             | 16.13                |

It will be seen from the above analysis that the corn is very rich in carbonaceous substances, such

as fat and starch, while the blood goes to opposite extreme, being rich in nitrogen and salts (ash). The albuminoids (flesh-formers) are nitrogenous compounds, the percentage of nitrogen being obtained by dividing the albuminoids by 6.25. The shipstuff is intermediate in its composition. We regard this as the proper principle of feeding, and it explains the reason why we have not reported the experiments conducted at our Model Farm. On the correct principle, all names of foods are discarded, the guiding principle being the "nutritive ratio" or the relation which exists between the flesh-forming and the heat (fat) producing substances, the names of the foods from which these substances are obtained not being material to the issue. Where the ration is rich in albuminoids, the nutritive ratio is said to be high; where the ration consists largely of fat, carbohydrates (starch, &c.) and crude fibre, the ratio is said to be low or wide.

Four pigs were selected and divided into two lots—average weight of pig, 55 lbs. One lot was fed exclusively on corn meal, with a small quantity of corn (nutritive ratio about 1:10), and the other lot was fed 4 parts shipstuff with one part blood, which makes a very high ratio. After slaughter, the fat was separated from the lean, and careful weighings of bone, hair, fat, lean, blood and vital organs were made.

The corn-fed pigs (lot 2) weighed respectively at time of death 139 lbs. 15 oz. and 170 lbs. 14½ oz.; the weights of lot 1, fed on shipstuffs and blood, were respectively 138 lbs. 6¼ oz. and 170 lbs. 4½ oz., and the per cent. of external fat to live weight was, for pigs in lot 1, 31.5 and 34.6, and for pigs in lot 2, 39.9 and 47.9; the percentage of external fat to lean and bone was for pigs in lot 1, 68 and 75.4, while for pigs in lot 2 it was 95.8 and 160.8; lot 2 (the corn-fed) thus showing an increase over lot 1 (fed on albuminous food) in external fat of 33 per cent. Prof. Sanborn notes the following facts, namely, that by comparison with a former trial the slower growth in the corn-fed pigs resulted in a less increase of fat; also that certain of the vital organs weigh more after the albuminous than after the carbonaceous foods. The kidneys are a notable example. Hence, Prof. Sanborn concludes to the probability that the kind of food modifies the constitution and functions of the vital organs. He calls attention to the fact that the albuminous foods also contribute to the greater growth of hair than the carbonaceous. One of the most important results of the trial was in the evidence it afforded that there was no difference in the weight of the dressed carcasses of the pigs fed on the albuminous foods and the corn-fed. "The only difference," he says, "in the carcass is that one is more than one-half lean meat, while the other is less than one-half lean meat, when bone is excluded."

Subsequent experiments were made by the Professor, testing the respective cost of production in producing fat and lean, but the few experiments should not be regarded as decisive. It appears that the carbonaceous or cheap food, which produces the most fat and the least lean, can be made at a slightly less cost than the expensive or albuminous ration. If this can be substantiated by further experimentation, intelligent consumers will undoubtedly pay more for moderately lean and wholesome meat than for cheap, diseased blubber.

## The Dairy.

### Methods of Testing Milk and Cream.

[A Lecture delivered by W. A. Maonald before the Dominion Farmers' Council.]  
No. 1.

Shortly after the organization of this Council, a discussion arose amongst its members inquiring into the best methods of spending its special funds in the interests of agriculture. It was finally resolved that our dairying interests should receive our first attention, it being found that no simple, cheap and reliable method for testing milk and cream was within the reach of our farmers and dairymen, and that the reliance was based almost exclusively upon pedigree. This inadequate conception of merit led to many abuses which you resolved upon rectifying. After examining the various methods adopted by the leading dairy countries in the world, you invested \$30 in instruments ordered directly from the manufacturers in Germany, and then you appointed me to examine into and report upon the various methods which brought them into use. You afterwards brought up the question before the first annual meeting of the Ontario Creameries Association, the result being that a committee consisting of Prof. Robertson, Mr. Valancey E. Fuller and myself, was appointed to examine the various methods of testing. That committee has not yet met, owing to the prolonged absence of Prof. Robertson at the Colonial and Indian Exhibition. Meanwhile, I have been preparing my report, and as the dairy season is fast approaching, preparatory calculations should now be made.

There is another important reason why this question should now be fully discussed. A committee of your Council has just reported favorably upon the establishment of a register for dairy stock based upon individual merit, and this register cannot exist without some simple and fairly accurate mode of testing. Before such a herd-book can be firmly established, many erroneous impressions must be removed, which, at the outset, will make your progress slow. By common acceptance, cows are divided into milk, butter and cheese breeds or classes. Under the scrutiny of tests there is only the shadow of a cause for any distinction whatever. Cows that give a large quantity of watered milk possess no merits over those which give a smaller quantity of rich milk. With reference to butter-making, however, this distinction may exist, that a larger percentage of the butter-fat of one cow's milk, under similar conditions, may be converted into butter than that of another cow. But it is questionable that this distinction is so great as to necessitate classification.

In the question of testing milk and cream, a great deal of misapprehension exists. One dairyman uses the churn to test the actual butter capacity of the cream; another uses the alcohol-ether test, which gives the percentage of fat in the cream, and not the percentage of butter. There is another system by which the percentage of fat in the milk is used as the standard of valuation. There arises another important question, viz., How far can the required tests be conducted on one system or principle? A given test may be perfectly suitable and sufficiently accurate for one purpose, but not for another. Where the tests are made say at agricultural exhibitions, where the number must necessarily be limited, greater accuracy is required than when

they are repeated weekly or monthly throughout the entire season, and instruments which may not be accurate enough for a few tests, may become the more suitable the oftener the tests are made; hence the questions of quickness and cheapness are material as well as that of accuracy. In the establishment of just standards suitable for our requirements, we can evade none of these questions, and if we can arrive at results which are an improvement on our existing systems, we shall not labor in vain.

The most practical question for solution appears to be the ascertaining of some relation between a given quantity of cream and the resulting product of butter, for the variation in the different qualities is so great that it is very unjust to divide the butter in proportion to the quantity of cream delivered at the creameries; but before this question is settled, it is necessary to know which is the more just standard, the percentage of butter-fat or the percentage of butter. There exists a much more constant relation between the butter-fat in the milk and the resulting product of butter than between the quantity of cream and the resulting butter. We may here discard all distinction between milk and cream, for cream is milk containing a large percentage of fat. This is amply proved by the fact that butter-milk has the same composition as skim-milk. When the whole milk is churned it may be regarded as cream. There is no greater necessity in making a distinction between milk and cream than there is in drawing a line between cream containing 40 percent of fat and that containing 70 percent, or between milk containing three percent of fat and that containing six percent. On a similar principle, it is presumable that skim milk may be submitted to the same system of testing as cream or whole milk; but this question I shall hereafter put to the test. These conclusions lead us, first of all, to a study of the characteristics of milk.

(TO BE CONTINUED.)

### Butter-Making in Denmark.

The Danes being our chief competitor in the British markets, any information regarding their methods will be of interest to our butter-makers. We are now passing through the same stage which they passed through many years ago, and we ought to take lessons from their experience, at least so far as our conditions will permit. We do not contend that we should blindly follow their customs and their practices, but there are many things in their methods from which we should take useful hints. The Danish Government has spent vast sums of money in the encouragement of butter-making, but we, with the aid of recent investigations, do not require such expenditures. We take the following from a conference in the *Pall Mall Gazette* with Prof. Segelcke, of Copenhagen:

"I have been lecturer on dairy farming since 1860," said Professor Segelcke in answer to a question. "At that time everything was done in a very rough-and-ready fashion, and there was all the irregularity of quality that is so fatal to success in this industry, more perhaps than in any other. With a splendid climate and soil for the production of butter, still it was made badly and on wrong principles; it was sent to market in a way to spoil it, and everything was unsatisfactory. At that time I took up teaching in connection with the Royal Agricultural Society of Denmark, with a view to improve the whole system.

"At first I had to face very strong opposition, and it was a long time ere there was anything

like a general appreciation of our work, but in the course of a few years self-interest did what foresight failed to do. The vast improvement in the butter of those who accepted our help gave them higher prices, and the common law of everyday commercial life has been the means of effecting the great change in the butter history of Denmark. Now everyone strives to produce the best, and we have defended our customers by insisting upon good quality.

"Perhaps I should explain," continued the Professor, "the grades of our tuition. There are really four—namely, that of the dairymaids, the Hollander or stockmaster, the young farmers and the collegiate course—the last being really a continuation of the third. There is, in addition to these four, the tuition at the public schools.

1. "Under the old system, the dairymaids were supreme. Previous to the time of which I am speaking, it was customary for the wives and daughters of the farmers to take part in, if not actual charge of, the dairies; but that had been given up, and the dairymaids were supreme in all matters relating to the making of butter or the skim milk cheese, which is the kind chiefly made in Denmark. They would allow no interference whatever with their work, and as the farmers or stockmasters knew nothing of dairying, they were permitted to do just what they thought fit. Everything was done by guess; nothing by knowledge. Some there were who understood the necessity for cleanliness and exactness, and though they might not be aware why a thing ought to be done, having had no scientific teaching, yet they realised that it helped to attain success. They had pride in their work, and thus succeeded in what they did. This class was the first to be touched, and very hard work it was. They did not believe in new ways. The old had done very well for them, and could not be improved. But by patience the thing was done. A few here and there accepted help, and thus the ice was broken. The system of apprentices was made use of, and the Danish Royal Agricultural Society aided us by grants of money. These apprentices are taken for two years, and we give allowances to the chief dairymaids where they will accept our methods and teach the apprentices in the way desired by us. Now I could take you to hundreds of dairies throughout the country which are perfect in their arrangements, where every detail is carefully carried out, and the dairymaids know not only that to obtain good butter certain things have to be done, but why it is so. The result is that the butter of these dairies is of the highest quality, and maintains its character all the year round.

2. "Having captured the dairymaids, we next commenced operations with the stockmasters. Twenty-five years ago they gave themselves entirely to the care of the stock and of the farm, knowing nothing of dairy work. If they had interfered the dairymaids would have refused to continue, and thus they allowed things to go on. All they had to do was to make the firkins or casks (this is not done by them now) and attend to the sales. But we have altered all that. They are taught dairy work if they wish, of which opportunity very many have availed themselves, so that they are at all times able to judge whether things are being done rightly, and can take hold of the entire work if needs be. But we have done more. We have taught them the principles of breeding, and hope by this means to considerably improve the milking properties of the cattle.

3. "But when we came to the young men, sons of the farmers," said Professor Segelcke, "there was the greatest opposition of all. These also knew nothing of dairy work. I exposed the evil of this, showing that a field of labor was thus closed to them, and that it meant a perpetuation of the system whereby the farmers were entirely at the mercy of their dairymaids. This I pointed out could not be right, and it was important that the farmer should be able to overlook all the work upon his farm. Opposition, of course, came from the dairymaids themselves, who were fearful for their profession; and outsiders were afraid of the danger arising from the mixing of young men and women together. However, I induced two of my friends to take a couple of these young men for a course of training in the dairy. This experiment was a perfect success, no harm resulted from the mixing of the sexes, and

gradually we extended the system until upwards of 700 have availed themselves of it.

4. "There are really two classes. First, the apprentices, who go for a lengthened period, generally two years. These, and also the second class, are only placed with dairy farmers of whom we have approved, and who have adopted our system. For obvious reasons it would have failed had we not exercised the greatest care in selecting farms for learners. The apprentices are expected to work in the dairy, and do whatever they are required. At the end of their course, if properly trained, we make an allowance to the master and to the dairymaid. Many trained in this way have become our best dairy farmers, and others are now tutors. The second class are young farmers, who know farming, and only require to have their education in this one branch completed. Their course is finished in ten weeks, and they are not expected to do the ordinary work of the dairy. Many have come from other countries to be instructed in this way. The cost is but £12 or £13 for each student. This is made up by 10s. for books, 20s. for apparatus, and £4 per month paid to the dairy master. The fourth course is the college, where those who wish can finish their agricultural education. In the first year we take the foundation sciences, and after that, special studies, as desired by the student.

"We commence tuition in the rural schools, for we cannot begin too early. But this is confined to principles which are to be applied at home. You must remember that we have no dairyschools proper in Denmark. Our object is to make every farm a school, and in this I claim that we have succeeded.

"We are now suffering from an over production of dairymen and maids. There are many of them now who have gone through the whole course of training with the object of becoming teachers, or taking charge of dairies where tuition is part of the work, but they cannot find employment. Some have gone abroad, and doubtless the thing will soon right itself. Then, prices have come down through the production of butterine in Holland and elsewhere. We have very stringent regulations in Denmark against butterine, and its sale as butter ought to be stopped in England.

"We have received much help in our work from outsiders.

"Of course, there is the assistance given by the Government, but I owe much to the assistance of our butter merchants. They brought their influence in my favor upon the farmers, gave preference and better prices to such as adopted our system, and have been most liberal in offering prizes at shows. To these butter exhibitions we owe much of our success, for the liberal prizes induced competition, and as quality was always placed first, we have been enabled to take the position we now hold as producers of butter. The butter shows have also been the means of convincing farmers that the new system is better than the old. The Danish people can appreciate good butter, for our average consumption of it is about four times that in England."

In the U. S. veterinary science has been called to the aid of the cattle breeders in their contagious disease troubles. Some breeders are now crying for protection against the "vets."

We learn that Mr. C. R. H. Starr, the Commissioner in charge of the Canadian Fruit Department at the late Colonial Exhibition, is making arrangements for the extension of the market for Dominion fruit in many populous centres that lie beyond the confines of Glasgow, Manchester, Liverpool and London, and is also endeavoring to open up markets on the continent. The movement is a good one, though we fear the continental markets will be difficult to open up. There is plenty of scope, however, for increased consignments in this country of good Canadian fruit. Mr. Starr's efforts in advocating cold storage for shipping Dominion fruit are well known.—*Horticultural Times*.

## Garden and Orchard.

### Norway Spruce for Shelter Belts.

This evergreen is justly becoming very popular as a timber, shelter and ornamental tree, says a practical nurseryman in the Farmer's Review.

It is now very commonly planted in the western and northwestern States for shelter belts. For this use it certainly has no superior. In the rich soils of these sections it has been known to attain, in the closely planted belt, a height of over 75 feet. The branches thickly interlace so as to form an almost impenetrable mass, which offers an effectual barrier to the most driving storm.

The value of such a belt enclosing the buildings and grounds on three sides can hardly be estimated. The most open, wind-swept location can be made cheerful, bright and sheltered by the means of these shelter belts. The comfort and pleasure to be derived from such an improvement can hardly be estimated. And if further inducement were necessary to the planting of these, we have it in the fact that they conduce to economy in many ways.

The greatest drawback to stock-raising in these open prairie States, heretofore, has been the open exposure to which animals are subjected in winter. The piercing winds, if unobstructed, will enter even the best of buildings; and as the stables and barns of the west are not, as a rule, of the best, winter becomes almost a season of terror, and the struggle for mere existence, hard and bitter. Quiet, sunny sheltered yards are few and far between. Animals thus exposed to the unmitigated rigors of our hard winters, consume an immense amount of feed, much more than they would if adequately sheltered and protected. Shelter is therefore economy to the stock raiser.

And the growing of shelter belts is also an economical measure to the gardener and fruit grower in such countries as before mentioned. Trees and shrubs that would perish in an open, wind-swept plain, will often thrive well in a sheltered location. The same shelter belt that protects the buildings should also include the orchard and garden. If for no other purpose it would be economy to protect the orchard and garden in this way, and when the one belt may be made to do service for all these purposes, it is a great wonder that there are not more of them found in our prairie countries.

No doubt the question of time in waiting for the growth of such belts deters many from planting. It must be confessed that Americans have not yet learned to look very far ahead and provide for the necessities of the future. And yet it is not far to look ahead. Most of us can look forward eight or ten years with a reasonable hope of time for enjoyment beyond.

An excellent shelter belt can be grown in that length of time. It will in fact assume very fair proportions in that time. Such an enterprise ought not to be delayed. The sooner we commence to plant the sooner we may enjoy the results of our investment.

The Norway spruce is a rapid grower, and if well started it will accomplish wonders in a few years. The main thing is to get a good, thrifty start. This can be done by going about it in the right way. We should not be too anxious for immediate effect. Don't try to plant too large trees even if you are urged to do so by importun-

ate agents whose interests it is to sell high-priced trees. As a rule planters should purchase seedlings from eight to fifteen inches high. Transplanted stock is to be preferred, and these may be had fifteen inches high at \$5 per 100. The plants are light in top and can be shipped in bundles containing 25 or 50 each, by mail or express. By this mode of transportation they get quickly and safely to the most distant points. Such plants may be set immediately in the row and shaded and mulched, or they may be thickly planted in a bed the first season, where the shading and mulching can be more economically given, and thus toughened to the new climate and location before being planted out in the row.

Smaller seedlings should certainly be planted thickly in the bed during the first summer. A deep mulch of cut straw or some such material should be used. If the plants are but few inches high and the mulch is worked in among them nearly to their tops, shading may be dispensed with.

### Trees for Shade, Windbreaks and Forest.

Now is the time to make inquiries into the varieties of trees required for spring planting. All the leading nurserymen now advertise extensively in the agricultural papers, so that no farmer can make the excuse that he does not know where to procure the seedlings.

Some varieties are harder than others, but the hardiness depends upon other circumstances than climate. The soil, the aspect, the drainage, the mode of management, and other conditions have something to do with the growth of a tree, so that the failure should not always be attributed to the want of natural hardiness in the variety. Trees grown in clumps are often regarded as being harder than when grown singly in an exposed location; the fault is then not in the variety, but in the conditions. Hardiness is usually understood to mean the lowest degree of frost which the variety will stand, but the degrees of cold vary much in the same locality, providing there is a change of aspect, soil and shelter.

In selecting trees for profit, the other main considerations are (1) rapidity of growth, (2) the value of the timber, (3) the nut-bearing trees, (4) the sheltering qualities, and (5) the ornament. It is sometimes desirable to combine as many as possible of these qualities, and select a sort of general purpose tree. The trees which have been proved to be the best adapted to our Canadian climate have been classified by Mr. R. W. Phipps as follows:

**MAPLES.**—Native hard maple (*acer saccharinum*); scarlet or soft maple (*acer rubrum*); silver leaf maple (*acer dasycarpum*); Norway maple (*acer platanoides*); ash leaved maple (*acer negundo*).

**ELMS.**—American or white elm (*ulmus Americana*); corkbarked or winged elm (*ulmus inflata*); Scotch or Wych elm (*ulmus Montana*).

**LINDENS.**—European linden (*tilia Europaea*); basswood (*tilia Americana*).

**ASH.**—Native white (*fraxinus Americana*); European ash (*fraxinus Europaea*).

**CHESTNUTS.**—Horse chestnut (*æsculus hippocastaneum*); sweet chestnut (*castanea Americana*).

**EVERGREENS.**—White or native spruce (*abies alba*); Norway spruce (*abies excelsa*); balsam spruce or fir (*tsuga balsamifera*); hemlock (*abies Canadensis*); white cedar (*thuga occidentalis*).

**PINES.**—White pine (*pinus strobus*); Norway pine (*pinus rubra*); Austrian pine (*pinus Austriaca*); Scotch pine (*pinus sylvestris*); Weymouth pine (*pinus cembra*).

LARCHES.—European larch (*larix Europea*); native larch, tamarac (*larix Americana*).

HARDWOOD TREES.—Hickory (*carya*); oak (*quercus*); walnut (*juglans*); beech (*fagus*).

MOUNTAIN ASH.—*Sorbus*.

The nut-bearing trees above enumerated have been exhaustively written up in recent issues of the *ADVOCATE*, all their qualities having been fully described; we have also given numerous illustrations and descriptions of many of the other classes mentioned in the list, and we have given the orders in which they should be arranged, of which we shall say more at a seasonable time.

Very few experiments have been reported with reference to the rapidity of growth of the different classes of trees, which is a very practical question when quick returns on the investment are desired. The following table, giving the age, height and diameter of the largest trees of the classes named, is taken from observations made on the Mich. Agricultural Grounds, compiled by Mr. W. J. Beal, professor of botany and forestry, the diameters having been taken one foot from the ground:

Table Giving the Age, Height and Diameter of Different Trees.

| Name.                 | Age, Years. | Height, Feet. | Diameter, Inches. |
|-----------------------|-------------|---------------|-------------------|
| Swamp White Oak.....  | 11          | 12            | 2                 |
| Sugar Maple.....      | 10          | 18            | 2                 |
| White Pine.....       | 9           | 15            | 2 1/2             |
| Batternut.....        | 10          | 18            | 3                 |
| Black Walnut.....     | 9           | 16            | 3 1/2             |
| White Ash.....        | 10          | 18            | 4                 |
| Black Cherry.....     | 7           | 17            | 3                 |
| Basswood.....         | 10          | 25            | 4 1/2             |
| Red Elm.....          | 14          | 30            | 6 1/2             |
| Poplar Birch.....     | 13          | 30            | 6                 |
| Balsam Poplar.....    | 12          | 30            | 6                 |
| European Larch.....   | 13          | 28            | 7                 |
| Lo. ust.....          | 7           | 25            | 4 1/2             |
| Chestnut.....         | 10          | 22            | 7                 |
| Catalpa speciosa..... | 13          | 22            | 10                |
| Silver Maple.....     | 12          | 35            | 10 1/2            |

The vegetarians in England are making rapid progress. The question of vegetable diet was discussed in a recent meeting of the Vegetarian Society, at which many able speakers took part. Dr. Nichols said he had become for many years identified with the question of diet. It was sixteen years ago since he wrote his first little pamphlet on the question, a little tract, entitled "How to Live on Sixpence a Day." In the year 1836 the Professor of Anatomy, under whom he (the speaker) was then studying, invited Professor Silvester Graham, of America, to give a series of lectures on diet. These lectures he attended, and became a vegetarian then and there. From that time he was strong and well, so well that from that day to the present he had had just one week of sickness that had disabled him from his work; one week and no more. So he had a good right to stand by the vegetarian theory. He was glad that the Vegetarian Society had taken up the question of fruit. Those who believed in Moses believed that in the beginning all lived without animal food; while those who believed in Darwin all believed that our early ancestors all lived upon fruit, every man of them. Fruit generally formed a very valuable article of diet. The grape was a perfect food—perfect chemically and naturally—so was the fig. In the heart of Africa numbers of people lived entirely upon dates. The secretary of the branch of their Society at Liverpool a few years ago had a six-weeks' holiday, and went on a walking tour to the Land's End and back, and eat nothing but apples the whole time—a sufficient and abundant proof that the apple amply sustained human life and strength. Dr. Tanner, after his forty days' fast, ate first a peach. That was the food that naturally and instinctively he chose after his severe ordeal. Fruit was the most beautiful and valuable food in the world. It was the first original and natural food of man, and he believed that it would also be the last.

**Veterinary.**

**A Disease Among Horses the Result of Injudicious Feeding.**

The following bulletin has been issued from the Veterinary Department of the Michigan Agricultural College:

In the spring of the year it is generally a matter of much consideration amongst farmers to have their horses in the best condition possible to do the work necessary at this season, and after a severe winter, which we often have in northern latitudes, many matters in the shape of extra farm work accumulate, which would have, weather permitting, been done before; and there is the spring plowing to be done, which, with a good pair of horses up to their work and in high spirits, becomes a much lighter task for the lover of horse flesh who tills the soil. We can scarcely wonder, then, that such a man will feed his horses well, and upon the most nutritious food while they are resting, recruiting as it were, in order that they may be the better able to perform their various duties when the time comes, and thus, through the error of liberality, quite a number of animals are sacrificed, "Killed by Kindness," every year. Again we find at this season of the year that horses kept for pleasure, or very light work, are often compelled to remain in the stable for several days, owing perhaps to inclement weather, and as such horses are generally pretty liberally fed and in high condition, they are frequently affected with the complaint which I am about to describe; but before doing so perhaps it may be better to settle upon a name for the disorder, and although this may appear to some an easy matter, or maybe of little importance, yet this very point has given rise to considerable controversy as to the cause, seat and other matter in connection with the disease—for instance, it has been called "congestion of the loins," but I have seen cases where the muscles of the shoulders were alone affected. In the State of Michigan I have from time to time seen the disease referred to in agricultural papers as "Red water," but this is misleading from the fact that in some of the worst cases the water (urine) is not red; besides it differs from a disease of that name in the bovine tribe in several respects, among others the cause. Without, however, commenting at any length upon the name, let me say that the one by which it is generally recognized in this country by veterinarians is Azoturia, a name given to it from the fact that the urine has been found to contain an undue proportion of nitrogen during an attack. So, adopting this cognomen, let us for a moment turn to the cause of the complaint, which in this case, as in all others, is the first thing to discover before we can hope to combat in an intelligent manner the invasion of the disorder; and in reference to it I may say, without going further, that experience has taught us beyond all reasonable doubt, that the disease is caused by feeding horses too liberally upon nutritious food and not giving them any exercise. I may say in this connection that every case of this malady I have met with presented just about the same history, and may further say that those who have described the disease, did so in a manner which corroborates what I myself have witnessed, so I think if I just briefly outline in familiar terms the history which I invariably get, it may make an impression that will do good in the future, to wit: The horse was in good condition and well fed, but owing to certain circumstances had not been out of his stall for a day or two. When brought out he was in the best of spirits, never, perhaps, feeling better in his life; but in a variable time, from a few minutes to, say, a quarter of an hour after being on the road, it would begin to show symptoms of distress, and the change from what would appear to be robust health to extreme prostration is very alarming, indeed almost in-

credible, running its course and destroying life in a day or so; happily, though, this is a malady which, if dealt with judiciously, is often amenable to treatment.

The disease may occur at any season of the year, but in my experience is more prevalent in the early spring than at other times, owing, of course, to the fact that animals are more subjected to the exciting cause at this than at other times.

To be able to recognize the disorder in the early stages is a matter of importance, for the sooner appropriate remedies are administered the better.

**THE SYMPTOMS**

are usually very well marked, although we will once in awhile meet with cases where it is not easy to recognize the disease at first sight; as a rule, though, the horse, after being driven and allowed to stand, will tremble, sometimes violently. The eyes will present a very anxious look; perspiration will run down the face; sometimes the whole body is bedewed with sweat. The animal, at this stage, generally paws with its fore feet and soon lies down, or it will crouch behind and appear as if injured across the back, having much difficulty in manipulating its hind legs when required to walk, when it eventually lies down, and in many instances is unable to rise, although it may be able to get up on its fore legs and sit, as it were, like a dog; but this attitude is not often attained more than a few moments, when the poor creature will fall upon its broad side. At this stage the urine, if voided or drawn away, is usually of a brownish red color. I have seen it described as being of the appearance of coffee, and, indeed, the comparison is striking. The breathing becomes hurried, the nostrils often being dilated and red within. When the hind quarters are apparently most affected they will have a hard, board-like feeling when pressed upon with the hand; the same condition of the muscles will appear on the shoulders when the forequarters are affected. The pulse becomes elevated.

**TREATMENT.**

It has become a very threadbare expression to say that an "Ounce of prevention is worth a pound of cure," but I know of no disease where this adage can be more appropriately applied than the one under consideration; so it goes without saying, that horses which are well fed should be exercised daily, or else they are liable at any time, after a day or more's rest, to come down with this disease. But when they do, the course of treatment which I have found from time to time to be of much benefit is, in the first place to give an active purgative of about a quart bottle of raw linseed oil; as soon as this is poured over, the affected part should be covered with cloths wrung out of warm water, and the whole covered with oil-cloth or other close fabric to keep the heat in. An enema may be given every hour or two until the bowels begin to act. It should be composed of soap and warm water. After about the first twelve hours the hot cloths may be left off, but the body should be kept comfortable and clothed according to the season. In some instances great relief is afforded in an hour or two after the hot cloths have been applied, in which cases they may be discontinued. In those cases in which the animals become very uneasy and knock themselves about considerably I have found great benefit from the use of chloral hydrate in doses of about four drachms every two hours or oftener, until several doses have been given or the animal is influenced by the medicine. The urine should be drawn several times a day.

After a day or two it is a good plan to get the horse upon its feet, and a few steps of exercise will often stimulate the blood-vessels in the legs, and thus do much good. It is also a good plan to rub the legs thoroughly when it is possible to do so, say three times a day.

I think in cases of this kind the services of a veterinary surgeon should be secured as soon as they can be, for nearly every case differs somewhat in the manifestation of its symptoms, and requires somewhat different treatment, so that the above can only be looked upon as a general outline, but at the same time such a course will have a good effect in ordinary cases at least—that has been my experience.

## Poultry.

### Poultry Notes.

#### MANAGEMENT OF HENS IN WINTER.

To begin with, I take it for granted that the fowls are in a comfortable house, but if you have neglected to attend to this very important part of the work, you had better do so at once. This wintering fowls in a house where the cracks are so large and numerous that the cold comes right through in big slices, and the roof so dilapidated that they can study astronomy on clear nights without going out of doors, is a piece of unpardonable shiftlessness, and the farmer who keeps fowls in such places ought to be indicted for cruelty to animals. What do I call a comfortable poultry-house? One in which the inside temperatures keep above the freezing point, even though the mercury outside drops to a cipher. Such houses go a long way toward inducing hens to lay in winter, when eggs command the highest price. "Artificial heat?" No, I don't believe in artificial heat except for raising early chicks. Fowls that are kept in artificially warmed houses are very sensitive to cold, and suffer from the least exposure to the cold outer air.

#### HOW TO FEED.

The next thing is the food. Every morning about as soon as they can see to eat, the fowls should have a warm breakfast of boiled vegetables mixed up with wheat bran and cornmeal. But don't feed the same thing every morning from now until warm weather; experience has taught me that hens lay most when fed upon a great variety of food. Potatoes, turnips, apples, carrots, pumpkins, squashes, celery tops, scraps from the table, anything of the kind when properly cooked will be greedily devoured and turned to good account. Our way of preparing this feed is to boil the potatoes, or whatever happens to be on the bill of fare at the time, until soft enough to mash easily, and then thoroughly mix with enough bran and cornmeal—two parts of bran to one of meal—to make a stiff mess; this is seasoned slightly with salt and pepper and fed warm. Sometimes we scald wheat bran and middlings with hot skim milk, and feed for a change; and again we boil up refuse meat, take out the bones and thicken the soup with bran and meal. This is superior egg food. An hour or two after breakfast we scatter among the litter in the shade a few handfuls of oats, sunflower seeds, wheat or buckwheat, sometimes one thing and sometimes another. This is given more to amuse the hens and keep them scratching than anything else. At noon they get a light feed of oats, wheat or buckwheat, and at night a full feed of corn or wheat—corn most of the time, and always when the weather is extremely cold. Corn digests slowly, and is therefore just the thing to "stand by" during the long, cold winter nights.

#### RAW BONE AND OTHER STUFF.

Besides all this, we give our fowls raw bone, a pint to every dozen fowls, three times a week; and on the other days the same allowance of meat, raw or cooked, unless we have plenty of milk. When there is milk enough to go around, no meat is given; and when we have sunflower seed to give a little every day less meat is given. Sunflower seed is rich in oil, and will take the place of meat to a certain extent. Water or milk is kept by the fowls throughout the day; cabbage heads are kept fastened where they can help

themselves at any time, and the boxes for gravel and crushed oyster shells are never allowed to get empty. "A good deal of work!" Yes, lots of it; but then there is nothing particularly hard about it, and it is work that pays. If you don't believe it, just try it awhile and report when the returns begin to come in.—[Fannie Field, in *Prairie Farmer*.]

#### Standard Weight of Fowls.

All pure bred fowls that have been admitted to the American standard of excellence are required to reach certain weights, and when on exhibition, for every pound below these weights, the specimen is cut two points, says the *American Farmer*. A pullet is a female not one year old, a cockerel is a male not one year old, a cock is a male one year old and over, and a hen is one year old and over. Of the most popular varieties the weights are as follows: Light Brahma cock, 12 lbs., cockerel 10 lbs., hen 10 lbs., and pullet 8 lbs. Dark Brahma, cock 11 lbs., cockerel 9 lbs., hen 9 lbs., pullet 7½ lbs. Buff Cochins, cock 11 lbs., cockerel 9 lbs., hen 9 lbs., pullet 7½ lbs. Partridge Cochins, cock 11 lbs., cockerel 9 lbs., hen 9 lbs., pullet 7½ lbs. White Cochins, cock 11 lbs., cockerel 9 lbs., hen 9 lbs., pullet 7½ lbs. Black Cochins, cock 10½ lbs., cockerel 8½ lbs., hen 8½ lbs., pullet 7 lbs. Langshans, cock 10 lbs., cockerel 8½ lbs., hen 8 lbs., pullet 6½ lbs. Plymouth Rocks, cock 9½ lbs., cockerel 8 lbs., hen 8 lbs., pullet 6½ lbs. Wyandottes, cock 8½ lbs., cockerel 7½ lbs., hen 6½ lbs., pullet 5½ lbs. Black Javas, cock 10 lbs., cockerel 8½ lbs., hen 8 lbs., pullet 6½ lbs. Houdans, cock 7½ lbs., cockerel 6½ lbs., hen 6½ lbs., pullet 5½ lbs. The different Bantams run, cocks 26 ounces, cockerel 24 ounces, hen 24 ounces, pullet 22 ounces.

The Leghorn family does not come under the weight clause, but the males should weigh about five pounds and the females four, when matured. Some specimens run over these weights, but it is best not to let them go much under.

The cattle quarantined on suspicion of pleuro-pneumonia at Chicago appear to be more likely to die of old age than of the dreaded disease.—[Colorado Field and Farm. They call the disease contagious, yet it does not spread. Young or thrifty animals do not take it. May be they keep well from pure cussedness.—[Texas Inter-Republics. The pleuro-pneumonia canard will go on record, soon or late, as one of the biggest conspiracies ever gotten up by the boodlers.—[Drovers' Journal. It is reasonable to assume that a combination of men employed at per diem wages will resort to schemes. A pleuro-pneumonia scare in Chicago is a bonanza for them, and the agitation is worked to perfection.—[Pittsburg Herald. We have never been in any humor for submitting to the *ipse dixit* of these veterinarians, simply because they claim knowledge which we are morally certain they do not possess.—[American Dairyman. If real malignant contagious pleuro-pneumonia had existed in the Jersey herds of this State in 1884, as the alleged veterinarians then declared, it would have destroyed the cattle industry of Illinois.—[Chicago Journal. The veterinarians and their allies, a crowd of pauper politicians, are using great efforts to make the most of the "outbreak." Congress is to be appealed to for a million or two, and so large a sum is worth manufacturing evidence for on a grand scale.—[Kentucky Home and Farm,

## The Apiary.

### Are Bees a Nuisance?

[By W. H. Weston.]

An important case that has engaged the attention of Canadian beekeepers, and one which is likely to effect this most important industry, is now before the courts in Canada. It appears that a beekeeper named Joseph Harrison, of Southampton, Ont., has been proceeded against by a neighbor, and an injunction asked for to restrain him from keeping bees in the town. The neighbor is a blacksmith named McIntosh, and he asserts that the bees came into his shop and stung the horses standing in the shop, and also that they came into the dwelling house and annoyed the inmates. The case came before a jury at the assizes which were held in the town of Walkerton, Bruce County, and Judge O'Connor very properly declined to grant the injunction, but reserved it for discussion before a full court. Had he issued an injunction in this case it would have established a most dangerous precedent, and one which would be always an annoyance to bee-keeping. This industry has always been considered a business that should be encouraged, and when we take into consideration the immense advantages derived by fruit growers by having the blossoms fertilized by the honey bees, we can hardly decide against them, should a citizen get stung once a year. That they are not usually so aggressive, I will mention a case in point. Mr. John McKimmie, of Lisle, Ont., has been in the habit of keeping bees on his property, which is adjoining the public school grounds, with an open board fence between the two yards, and although the boys had been playing ball during the summer, and frequently a half dozen were over the fence and among the bee-hives looking for the ball, he has yet to learn of one person having been stung. Another case is where a very prominent apiarist, Mr. Allen Pringle, of Selby, Ont., has kept over one hundred colonies, and quite near the public road, with only a picket fence between, and he never knew of a horse being stung while passing along the road or hitched up in front of the apiary.

Honey is used in a great many places instead of sugar, and in Europe bee-keeping is greatly encouraged. Sir John Lubbock is the president of an association of bee-keepers in England, and in Germany a knowledge of bee-keeping is requisite to obtain a diploma as school master. The government admit the importance of this industry, and pay experienced apiarists to travel about the country and give instructions in the art of bee-keeping. It would no doubt surprise many of your readers to learn that there is annually gathered in the United States and Canada over thirty million pounds of honey.

Dr. J. B. Lawes is still against ensilage, notwithstanding American and British claims, some of them based upon commercial considerations. This Rothamsted experimenter and celebrated authority on scientific agriculture, casually remarked a while ago in the *London Agricultural Gazette*, that a silo "rather tends to reduce than increase" the quantity of feed—which is contrary to the teachings of interested persons with cutters and other equipments for sale, who have even ventured to maintain that you can get more out of a hole in the ground than you put into it.



**Inverting the Brood-Nest.**

One of the late innovations in bee-keeping which has gained favor so rapidly that we must think it has come to stay, is that of inverting the frames of hives. In either case the brood-nest is turned upside down. This was first accomplished by so arranging the frames that they could be readily inverted. Instead of the old Langstroth frame with its single top-bar, which had projecting ends, a perfect rectangular frame, with no projecting bars, was made to swing in a larger frame with projecting top-bar and end-bars which reached a little below the middle point of the end-bars of the inner rectangular frame. By use of wire nails the inner frame is pivoted to the outer half-frame, so it can swing in and be inverted in a moment at any time. I have used these frames now for two years, and like them so well that I am changing all my combs into these reversible frames.

Within the last two years an attempt has been made to improve upon this plan by inverting the entire hive, which is about the size of the common Langstroth hive, and consists of two horizontal sections, which can be used either independently or together. Thus it will be seen that the frames in this hive are only about half as deep as those of the usual Langstroth. These frames have close-fitting end-bars, and when put into the hives, rest on tin projections, which are tacked to the bottom of the end-boards of the hive. When all the frames are put into the hives, a wooden thumb-screw, which is set in the side-board of the hive opposite the end-bars of the frames, is screwed up. This holds all the frames firmly, and so when these screws are thus turned the frames are all held securely, and the entire hive can be turned bottom up in a moment.

The advantages of inverting are: 1. Combs are built and fastened to the frames on all sides. Every bee-keeper knows that bees always fasten combs firmly at the top and along the upper half of the edges. When this is once done we have only to remove the frames, when the union is made complete about the whole margin of the comb. The advantages of such entire union are that the combs are held securely, and are in no danger of falling out when extracting or shipping bees.

2. The spaces between comb and frame which serve as hiding places for queens, are removed. This last is a great gain, as anyone who has sought for queens is aware.

3. Reversing frames places the honey below the brood, which is unnatural. Hence, if just as the season opens, when we place the sections on the hive, we reverse the frames, the bees at once carry the honey above the brood, or into the sections where we wish it, and once employed in filling the sections they make no halt till the season closes. If, when we reverse, we uncap some of the honey, we will hasten this rush to the sections. Many who have been annoyed at the persistent refusal of their bees to work in sections, will appreciate this argument in favor of reversible frames, though to the expert apiarist this is the weakest argument.

4. When a bee-keeper has all the bees he wishes he can preclude swarming by this simple work of inversion, which, in case the hive is reversible, is but the work of a moment. Curious as it may seem, the bees at once cut away or remove all queen-cells as soon as the combs are turned upside down. Thus by inverting the hives each week swarming is prevented, and all but the work of a moment.

Of course this last, and indeed all the points, argue loudly in favor of the reversible hive. To invert a hive takes a moment; to reverse all the frames is the work of several minutes.—[Prof. A. J. Cook, in Rural New-Yorker.

**Correspondence.**

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

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

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

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

**Small Fruit Culture.**—Those of our correspondents who have asked questions about the management and cultivation of small fruits will, we hope, kindly wait till the proper season arrives, when we can describe the methods much more fully and satisfactorily than in our correspondence columns.

**"Adulterated Salt."**—Again referring to the fraud still being largely perpetrated upon the public by the manufacture of adulterated salt, I regret the Department of Agriculture will not make public the analysis made by them some time ago of the various brands of salt. It is absolutely necessary that the farming community of Canada should know where to buy an honest salt and the proper brands to select. Mr. John Ransford, of Clinton, promised to aid me in rooting out this evil, but I find he has been slow to fulfil it. At a meeting of the County Council of Huron at Brussels, in the first week in December, I find the Messrs. Ransford and Coleman, of Seaforth, were present. They appealed to that body to memorialize the Government to put a standard weight on a barrel of salt, but to remedy the evil of making and selling adulterated salt they were found "wanting." Herewith submit the resolution passed by that body, in which you will see that instead of providing for the non-production of that "vile stuff," they still make it non-incumbent upon the manufacturer to increase the adulteration rather than to diminish it. Moved by Mr. McMillan, seconded by Mr. Clegh, "That the Warden and Clerk, on behalf of this County, petition the Government at Ottawa to pass a law rendering it a punishable offence for any salt manufacturer to sell salt in barrels, sacks or bags without having the name of the manufacturer and the net weight of salt contained therein legibly printed on the barrel, sack, bag or other package, and that the net of salt in a barrel be 5 bushels, or 230 lbs., and further rendering it a punishable offence to sell salt so branded that does not contain the weight as branded thereon." I have been told by good authority that Mr. John Ransford was the original penner of this motion and openly admitted so at the meeting. Now, this motion reads very nicely to those unacquainted with this "adulterated stuff," but makes no provision for what kind of salt it may be, and still further provides that those who make a salt that cannot be pounded into the size of barrel submitted by "those gentlemen" must resort to adulteration to make the weight to keep within the law and compete with dishonest salt. Now, I am not ignorant of how this adulteration is used, nor any salt manufacturer, nor yet ignorant of who does use it. I therefore say if Mr. R. was anxious to "root out this evil" why did he not add, as he admits in your issue of September, that the Government make analysis at least four times a year? Why is he so reticent to the important fact, "That we want and must have an inspector." The argument has been used that this would increase the cost to the consumer, but such an argument is "child-like." For one cent a barrel extra would examine all the salt in Canada, and where is the man who would murmur against having that additional cent to know he has "salt," when he purchased a barrel branded such. Now, I am strongly in favor of the foregoing resolution were it to include some means by which to eradicate this fraudulent practice of adulteration. In your September issue Mr. Ransford imputes motives of dishonesty in weight to me, but let me ask the farming community would they not much rather buy a 200-lb. barrel of honest salt than 300 lbs. of half salt and half — (I loth to mention

it) to cure their butter and feed their stock. This adulteration is a "cheap" material for which they have to pay freight and buy as "salt." In vindication of the motives imputed by Mr. R. of light weight, allow me to say:—I publicly advertise five kinds of salt in five different sized barrels, which are to be found in the hands of every dealer in Canada, including Mr. R.'s own office. Am I not at liberty to sell (or is it dishonest) a half, or quarter, barrel or sack? Is Liverpool salt not sold in sacks, half and quarters? Do I deceive the public in placing my advertisement as such in their hands? Simply because Mr. R., perhaps, would require too small a vessel to contain anything less than a 300-lb. barrel, he feels those that can do it should not, because "he can't." Why does Mr. R. not approve of the "efficacy of the plan" of an Inspector? I'll await his reply. Now, Mr. Editor, to remedy this demoralized state of affairs we should have the various sized barrels and sacks according to law, and a properly appointed Inspector. One size barrel will not do, as we find for vessel shipment we want a 250-lb. barrel; again, on the long portages of the great North-west a half and three-quarter barrel is necessary (Mr. R.'s 300-lb. is too heavy); and, by all means, some method to detect "adulteration." Happily for this country, those producers of adulterated stuff have had to abandon the manufacture of dairy and table salt, as it would not dry. We are, therefore, somewhat free from the disgusting fact of thinking that the public were consuming into their systems this poisonous, vile stuff. Mr. R., I am sure, is not "green" enough to use it, but if his conscience is still so "green" that he thinks 300 lbs. of adulterated salt is equal to 200 lbs. of good, honest salt, I wonder he is let at large on his own farm for fear "his cows might eat him."—JOSEPH KIDD, JR., Goderich, Ont.

[We are surprised that we do not hear from farmers on this important question, many of whom must have some ideas about the quality of the salt they purchase, or whether they get honest weight. We don't wish to commit ourselves to a policy without first becoming acquainted with all the facts. At present we cannot see our way clearly to advise the appointment of an inspector, who might become a political tool, or a pliable lump of adulterated clay in the hands of the fraudulent salt manufacturers. If the Government had done their duty and published the names of the manufacturers of the adulterated salt which they analyzed at the Model Farm, there would have been no demand for an inspector. The Government seem by their action to prefer an inspector, which will increase the power of their political agencies.]

**The Farmer and the Merchant.**—In your December number you print a letter from a "Store-keeper in Peterboro' County," complaining of farmers not marketing their produce as early as possible and paying their store bills, and in a style not complimentary to their farming customers. Now, sir, has not every question two sides? In the first place I would ask, Do merchants give twelve months' credit to farmers out of pure philanthropy, or do they not rather do so to increase the volume of their business and make more money, and do not farmers have to pay an increased price for the accommodation? Is there a merchant in Ontario who will say that if he received cash he could not sell his goods cheaper? And, then, as to prompt payment. Certainly, that is most desirable, but in these times of extreme low prices is it not in the interest of the storekeepers themselves that farmers should get the highest obtainable price for their produce, that they may be enabled to pay their accounts in full? In your November number you published an excellent article from the London (Eng.) Miller, showing that the estimated wheat crop of the world was this year nearly 15,000,000 bushels short of the estimated consumption, and although that is a small matter, still in the face of previous years' large surpluses, are not farmers justified in holding their wheat for at least a small rise, and is it not in the interest of even storekeepers themselves that wheat, at least, should have been so held? And I claim for farmers that, having been charged a credit price for their goods, they are entitled to use their own judgment in marketing their produce; and if I had been a customer of the Peterboro' dealer, I should transfer my custom to where it was better appreciated. By inserting this communication in your next issue you will oblige.—G. B., Burinbrae, Ont.

[The farmer certainly has a right to market his produce when it suits his convenience, and drive the hardest possible bargains with his storekeeper. If the storekeeper does not like the farmers' system of doing business, let him turn farmer. If the farmer does not pay his bills when they are due, this is a different question. Every farmer is morally and legally bound to fulfil his promises; if he does not do so, the storekeeper has his remedy, like all other business men. The trouble here is that the storekeeper would lose reputation and custom by suing, while the farmer's credit is little affected by being sued. In truth, the farmer is master of the situation, and if the merchant chooses to become his servant, the farmer is not to be blamed. The storekeeper, like the farmer, can manifest his independence by selling for cash. If he cannot insist upon a cash basis, he is at liberty to engage in a less competitive business.]

**Sweet vs. Sour Cream Butter.** In your December issue you say that the farmer can milk his cows and have his milk into butter for breakfast. Now, would that not lead farmers to believe that butter should be made of sweet cream? If so, it would be a great mistake, as the right acid in cream, before churning, is the only thing to give the butter the right flavor and keeping quality.—J. N. Z., Lisbon, Ont.

[Some consumers prefer sweet cream butter, and others like butter from sour cream best. The tendency is to unsalted butter, made from sweet cream. People who delight in spicy foods prefer butter of a salty or acid taste, but increased intelligence in matters of diet is banishing vitiated tastes, so that the desire for natural flavors is on the increase. A great many sins can be hidden in acid and salty butter, making the product deleterious to the health. When everything is kept scrupulously clean, and the butter made from wholesome milk, there is nothing more delicious than the natural flavor of the pure butter, the artificial flavors being induced by habit at the expense of intelligence. To give it its right name, sour cream butter is rotten butter, and anybody who prefers the rotten stuff can obtain it from the sweet cream—by letting the decomposition take place after the butter is made. The keeping qualities do not depend upon the butter being made from sweet or sour cream. Long keeping butter can be made both from sweet and sour cream, but the process of manufacture is different.]

**Mice in the Orchard—How to Raise Trees—When to Prune.**—Much advice has been given about saving fruit trees from mice, and the general opinion is that banking is the best preventative. Banking is not a universal success, as if it is done too early the rains wash it down, and if put off too long it cannot be done at all. Then sometimes the mice will climb the bank, and again a method the orchard is in grass. As a remedy for all these defects, my practice has been, in rearing a large orchard, to take tarred paper, cut it into squares of about twelve inches and wrap it around the tree close to the ground (after clearing away all grass and rubbish), tying it with two strings. This need not be taken off in the spring and will last at least two years, and costs about a quarter of a cent per tree. Many more people would have orchards if the first cost were not so great. Also, many orchards have many gaps in them, to fill which expense is unnecessary. To get over these difficulties, I find that raising your own trees solves the problem. The root-grafts, already set, can be bought of nurserymen on the other side of the lines, if not here, the cost being from one to two cents apiece, with directions for their management. Buy about twice as many as you want, and then plant none but the best trees and sell any surplus, reserving some, or fill up any gaps that may come in the first year or two. I am satisfied that this is the only possible plan for keeping up a pear orchard. My opinion is, for young trees when you need to grow wood, the time to prune is in the spring when growth commences. If the trees are pretty well grown, and fruit is to be expected, then prune after blossoming. I tried pruning in winter once, but have not practiced it since. The wounds do not heal well, and all summer long sap will run from many of them. Hoping these hints will be as useful to others as they have been to me, I now give them to you for publishing.—B. J. P., New Durham, Ont.

**Commercial Fertilizers—When to Plow and Manure Sod—Sweet Corn.**—It is with pleasure I renew my subscription for your valuable paper. I think it is 15 or 16 years that I have had your paper. In regard to the enquiry when to apply manure for roots and potatoes, we generally plow in the manure in the fall, with the exception of a few acres for early potatoes. We apply rotted manure in the drill; we do not apply manure in the drill for carrots or parsnips, as it makes them grow forked and crooked. I find in my experience that sod will rot faster plowed shallow early in spring than late in the fall. Where I got the largest crop of corn this past season was on land cultivated in this manner. I plowed the land early in spring; the soil was a mixture of clay and sand with a clay sub-soil, and was in hay the year previous. I gave it a good harrowing with a pulverizing harrow I saw advertised in the ADVOCATE; it left the land like an onion bed. I left the land in this condition till the weather was warm enough for planting corn. (My father used to say when the plum trees were in bloom was the time to plant corn.) Then I gave the land a harrowing crosswise, made a marker out of two-inch plank and made them like sleigh runners, 3 feet apart, and to mark four drills at a

time and attached a pair of sleigh shafts to it. I marked the field two ways and planted the corn in the checks so that I could use the cultivator both ways. The manure used was a commercial fertilizer with a guaranteed analysis as follows: Ammonia, 3 to 3½ percent; soluble phosphate, 19 to 21 percent; potash, 2 to 2½ percent. I applied this fertilizer at the rate of about 300 lbs. to the acre, a small handful round the corn, kicking a little earth over the seed before putting on the fertilizer, as it was pretty strong and might injure the seed. The corn was Crosby Sugar Corn, grown for a canning company, and it paid me fifty dollars per acre, and I had a fine crop of stalks saved in good order for the cattle, which more than paid for the labor and fertilizing. The three acres joining in the same field was land that had been in a hood crop the year previous with barn-yard manure. I put corn in the hill with stable manure; it came up very thin in places on account of the wire worm destroying it. It had not the dark-green appearance like the plot joining in fertilizer. I have always had better corn on sod than on other land. What surprises me is that farmers will grow this western hog-tooth corn for fodder when cattle are much more fond of sweet corn stalks, and cows will give much more milk on sweet corn-stalks than the other. It is an easy matter to save the seed.—A. M. G., Montreal.

[It is a wrong principle to put manure or fertilizers in the drill, although there are exceptional circumstances in favor of the practice.]

**All About Land Plaster.**—I wish to ask a few questions about plaster, as I own an extensive quarry, but it has not been used here as a fertilizer until quite recently. We have no plaster mills here, but a few of us have been using a little of it lately, which we had ground at the grain mills. We find it to be very good, and wish to give it a further trial next spring. I have a machine which will reduce it to about the size of beans, driven by horses. Can you, or some of your readers, tell me through the ADVOCATE where I could get a small cheap machine suitable for grinding it fine enough for the land, to run either by horses or a small engine? When is the best time to sow it on clover and other crops, and how much does it require to the acre? Would it pay to use it in stables where a number of horses are kept? What is it worth per barrel as a fertilizer in Ontario?—S. F., Wallace, N.S.

[Read editorial article on first page. We know of no manufacturers of the machine you mention; write to the manufacturers of commercial fertilizers who have been advertising in the ADVOCATE; they will be able to tell you where they procured their grinding machines. In this section of Ontario land plaster is sold at \$7 per ton, retail.]

**Damages for Planting Trees Along the Line Fences.** My neighbor on the west side of my farm is allowing a great number of soft elm trees to grow along the line fence which runs south and north. The shade of the trees injure my crop very much, as the tops are large and the roots come through the fence and prevent plowing. That kind of timber is useless for any purpose, even for firewood, as it will not split. Can I get any redress, say for damage?—J. B., Moose Creek.

[It is not likely that a jury could be found that would award you damages. The public policy inclines to the encouragement of tree-planting, both in lines and in groups, and it is the general belief that shade trees and wind breaks do more good than harm. Perhaps you can induce your neighbor to plant better trees.]

**Farmers, How Much do You Get for Your Ashes?**—We are being solicited for orders for Canada hard wood unleached ashes by a New York firm, who claim that the ashes they offer to supply us with for a fertilizer are gathered from house to house from the farmers in Canada, in districts where coal is so dear that it does not pay to use it (\$12.00 to \$18.00 per ton). They do not locate the districts to us, but say they are in Ontario, and that 30 wagons gather the ashes daily. Now, although we are sensible to the fact that your paper is published in the interests of Canadian farmers, we count upon your brotherly good feeling towards us American hoosiers to inform us if we can rely on the above statements in buying? We can scarcely believe the intelligent farmers of Ontario sell the barrel or two of ashes they make in a winter at such a price that they can be brought here and sold to us unleached as a cheap fertilizer when they are so valuable to them on their own lands. As so our knowledge of Canadian farmers suggests a leach barrel.—Orla, Englewood, New Jersey.

[We must say to the everlasting disgrace of our farmers that the statements are true, and we don't believe that they make you a present of their ashes out of pure brotherly love. We have time and again pointed out the value of ashes as a fertilizer, and still many of our farmers persist in trading them off for as much soap as the peddlers like to give them. They would sell their best ashes for five cents per bushel cash. We can scarcely account for this act of folly; our farmers are, on the average, as intelligent as those

in other countries, but on the ashes question many of them exhibit symptoms of downright stupidity if not madness. It seems that they cannot be educated to the value of concentrated fertilizers. What is worse than all this, we have the best phosphate mines in the world, and they would allow you Americans and the English to take this birthright away merely for an old song. The time, however, is fast approaching when our farmers must either study these questions or permit you, our American cousins, to come and take possession of our land. They can't always be lead astray by the cry "No stock, no manure."]

**Notes From Nova Scotia.**—Probably a short sketch of this region would not be amiss. Our winter did not commence until 3rd ult, and it never is very steady, but had a great deal of open weather throughout. We have no very cold weather here. Thermometer seldom falls below zero in winter or rises much over 50° in summer. There is a great deal of fog and misty weather, especially on the sea board. Farming is done here on a smaller scale than in Ontario and on a different system. The land is mostly stony and rough, but very fertile, mostly composed of loam and producing largest crops of hay (often 4 tons per acre), roots and vegetables. Some parts of the county produce apple equal to any grown, except Cornwall's Valley. The question of manure is very simple near the sea coast here, as there is immense quantities of sea weed free to all for the hauling. Near the shore farmers haul it on the grass land at the rate of from 8 to 12 cords per acre every alternate year, farther back in the county compost it for planting; there are also large quantities of fish offal used as fertilizer. About stock, there is none of the imported stock that is very popular except the Jerseys and their grades. There are a few Scotchorthons, Devons, Guernseys and Ayrshires, but farmers do not seem to appreciate them very much, so you see dairying and not beef raising is a specialty here. But the inhabitants of this county are essentially Maritime. A man will work on his farm for a few years and the next thing you will hear of him in Japan or in the Pacific Ocean in command of a ship; a large percentage of the population are or have been sailors. Could you give me in next ADVOCATE cause of sloe in colts; also how to prevent it, as it is a very prevalent disease here.—SUBSCRIBER, Yarmouth, N. S.

Do not mix with any pigment, but apply the oil alone. Crude petroleum is not a drying oil like linseed, and when mixed with paint does not form a 'body' in drying, but the oil penetrates the wood, leaving the paint in a dry state on the surface. For a good job apply two or three coats of petroleum. After this is very thoroughly dry, and if color be desired, apply one coat of common metallic paint. The higher parts of the oil sink deepest into the wood, from one-eighth to one-fourth inch, the heavier parts remaining on or near the surface, forming a sort of waxy coating that moisture fails to penetrate. Wood treated to three coats of this oil (which is about all I have succeeded in getting it to absorb), seems to be as indestructible as fat pitch-pine, which it closely resembles.—[Cor. in Exchange.]

For orchards, says Dr. R. C. Kedzie, in the New York Tribune, I regard ashes as worth more than six times the value of barnyard manure, ton for ton. When barnyard manure is composted with wood ashes, the coarse vegetable material and litter are rapidly broken down, and the manure is speedily fitted for use; there is some loss of nitrogen in the form of ammonia, but there will be no loss of mineral matter if kept from leaching by water. Wood ashes represent all the mineral elements of vegetable growth, and contain everything the farmer must give his crops except combined nitrogen. Wood ashes will vary in composition and value with the kind of wood and the part of the tree. I will take the ash of the body-wood of the beech tree as representing the average of wood ashes. A ton of such ashes contains 320 pounds of potash, worth \$16, and 105 pounds of phosphoric acid (insoluble), worth \$5.25. Omitting all the other ash constituents, which have some value of themselves, the potash and phosphoric acid of a ton of such ashes are worth \$21.25, or nearly six times the value of a ton of fresh horse dung.

## The Household.

### Food for the Sick.

The preparation of food for the sick is one of the most necessary and graceful accomplishments. Like other accomplishments, it requires time and skill and patience to acquire it, and it requires suffering also—for those who have been sick themselves can best enter into the feelings of the invalid and cater to his preferences, and they know how to avoid the thousand little things, unnoticed by the well, which torment the sick.

Sickness sharpens and refines all the senses and quickens marvellously the susceptibility to pain and annoyances of every sort. The leisure which it enforces on the patient and the sense of himself which it compels act with microscopic power on all his surroundings, and especially upon whatever discomforts may be in them. The disordered body seems to seize hold on whatever is in sympathy with itself in respect to disorder, and take less notice than is normal of agreeable things. This is a part of the sickness.

The style in which food for the sick is served is scarcely second in importance to the food itself. The same articles served in a careless way may create distaste for food that, spread in an appetizing and inviting style, would create a relish for them. Dainty china, spotless napery, shining silver, are by none better appreciated than by the invalid. The three meals a day are the chief events that break the monotony of his existence, and if they are delicately and carefully prepared and served, his intellectual and æsthetic taste will be gratified if the palate has no aptitude for pleasure. If the appetite is slender, as it is in most sicknesses, the quantity prepared and brought to the patient should be very small, so as not to overpower his imagination. The food should be freshly prepared each time, and as soon as the patient has eaten what he wishes it should be removed from the sick-room. A small table placed beside the bed is better than a tray placed on the bed, and this table may be set with flowers and china and silver and glass, so as to be very attractive. Unless the patient has expressed a wish for some particular dish, the articles served should be a surprise to him and capture his appetite, if possible, without any show of resistance.

The articles of diet suitable for the sick-room are only variations of the food used in health. Of the meats, venison is said to be the most easily digested and assimilated; mutton comes next, then beef, then poultry. Veal, pork and all fats should be avoided. Stale bread is better for invalids than fresh bread, and baked potatoes better than potatoes boiled. Fruits may be served in their season, as there is relish for them and they are found wholesome.

Mutton broth is served thus: To a pound of meat cut in small pieces put a quart of cold water. Boil slowly three or four hours in a closely covered kettle till the meat falls in pieces. Strain, remove all fat, and put in two tablespoonfuls of rice that has been soaked half an hour; simmer until the rice is well cooked. Season with salt, and serve with toasted cracker. Chicken broth is made in the same way. Enough broth and gruels may be prepared at one time to last for several meals, and just enough warmed and served at one time.

Beef tea is made in several ways. One is to cut a pound, more or less, in small pieces, put it

into a bottle or glass can and cover tightly, put it in a pot of cold water with a plate at the bottom. Heat gradually and simmer two or three hours. Pour off the juice, season with very little salt, and remove all oily particles from the surface. A slice of bread may be laid over the surface to absorb them. Or, soak the beef in the cold water for half an hour, squeezing it occasionally, then put it over the fire, covered, and boil slowly for ten minutes. Remove the scum and the fat and serve hot. Boiled rice may be added if desired. Beef juice is a pleasant change from beef tea, and is thus prepared: Take a nice juicy steak, remove all fat, broil it over a bright coal fire long enough to heat it through. Then with a meat squeezer press out the juice into a cup set in hot water. Remove any fat that may be in it, shake the salt-box over it slightly and serve.

Toast, nicely prepared, is relished by most invalids when it is perfectly made. The bread must be cut thin, the crust trimmed off and then the slice held in the toaster over a bed of coals and turned from side to side till all the moisture is removed, then allowed to become a rich golden brown. Serve it on a hot plate the moment it is done.

Gruel made after the following directions is a most nutritious and palatable dish for the convalescent: Pour a quart of hot water into a clean earthen or tin vessel, over a brisk fire. When it boils stir into it two tablespoonfuls of corn or oatmeal mixed smoothly in just water enough to make it a thin paste; put a small lump of butter in and stir frequently for half an hour; then add a gill of sweet milk, and when it boils again throw in the upper crust of hard-baked bread cut in small pieces; let it boil ten minutes, then add a shake of black pepper, a little salt, a pinch of grated nutmeg and a little more butter. The yolk of an egg boiled hard and mashed makes an agreeable addition as the appetite improves. In cases of severe illness the butter and spice should be omitted, and as health returns the ingredients may be varied to suit the demand.

The various mashies are all made in the same way. Cornmeal, oatmeal, hominy, are thrown into *salted boiling water*. When they have boiled a few minutes they should be removed to a place on the stove or range where they will cook slowly and without need of frequent stirring.

Tapioca jelly is sometimes relished by the invalid. Soak a half-cupful in two cupfuls of water for four or five hours; then put it in a farina kettle and steam until it is well done and clear. Then add the juice and grated rind of a lemon, and sugar to taste. Pour into moulds, and serve with sweetened and flavored cream.

Rice jelly may be made of rice flour or of the grain. Boil the grain until it is thoroughly soft and transparent. A stick of cinnamon boiled with it flavors it agreeably. Add loaf sugar, and pour into moulds. Serve with cream and sugar.

A fresh egg broken into boiling water and cooked till the white is congealed, then laid on a piece of nicely-toasted bread, dipped in hot milk and buttered, is an appetizing dish for the convalescent. A sound, well-flavored apple, peeled and baked slowly, served with cream and sugar, is a toothsome dish. Sweet oranges, with peel and everything removed but the pulp, and this cut in small pieces, served with powdered sugar, are agreeable to most invalids.

For drinks, lemonade is pleasant to the fevered patient. It should be made of lemon pulp dives-

ted of the peel and seeds. If tea is given it may be made at the bedside in a dainty little teapot, and served in a small cup of egg-shell china. There should be in every family a service of nice china for special use in the sick-room. Canned blackberry juice and canned grape juice may serve as a basis of agreeable acid drinks, and so of the various jellies. Wine whey is sometimes useful as a liquid food; it is thus prepared: Set over the fire in a saucepan a pint of milk; when it is near boiling pour it in white wine, stirring all the time, till the curd separates from the whey and the whey seems clear. Boil up once, then pour off the whey, add half as much boiling water, and sweeten it to taste. Lemon whey is less heating than wine whey, and is made by using lemon juice in milk instead of wine. Buttermilk is said to be an excellent drink for consumptive patients. It is more easily assimilated if made from sour cream rather than from sweet. Weak green tea with lemon juice in it instead of milk is said to be refreshing for fevered patients. Apple water is good, and is made by pouring a quart of boiling water on three or four large apples sliced and put in a jug. Cover tightly till the liquid is cold; then strain and add a little lemon juice and sugar to taste. Ice broke in small pieces and used to allay thirst, is very useful in case of inflammation of the bowels, sickness of the stomach, sore throat and cankered mouth.

### Waste Paper for Household Use.

Few housekeepers have time to black their stoves every day, or even every week. Many wash them in either clear water or dishwater. This keeps them clean, but they look very brown. After a stove has once been thoroughly blacked it can be kept looking perfectly well for a long time by rubbing it with old paper every morning.

If I occasionally find a spot of gravy or fruit-juice that the paper will not take off, I rub it with a wet cloth, but do not put on water enough to take off the blacking. I find that rubbing with paper is a much nicer way of keeping my tea-kettle, coffee-pot and tea-pot bright and clean, then the old way of washing them in suds. The inside of coffee and tea-pots should be rinsed in clear water and never in the dishwater.

Rubbing with dry paper is also the best way of polishing knives, spoons, and tinware after scouring. This saves wetting the knife-handles. If a little flour is held on the paper in rubbing tinware and spoons, they shine like new silver. For polishing windows, mirrors, lamp chimneys, etc., I always use paper in preference to dry cloth.

Preserves and pickles keep much better if a brown paper, instead of a cloth, is tied over the jar. Canned fruit is not so apt to mould if a piece of writing paper cut to fit the can is laid directly on the top of the fruit.

Paper is much better to put under a carpet than straw. It is warmer, thinner and makes less noise when walked upon. A fair carpet can be made for a room that is not in constant use, by pasting several thicknesses of newspaper on the floor, over them a layer of wall paper, and giving it a coat of varnish. In cold weather I have often placed newspapers between my bed quilts—knowing that two thicknesses of paper are as warm as a quilt. If it is necessary to step upon a chair, always lay a paper on it; this saves rubbing the varnish off. Children easily learn the bad habit of doing so.

## Family Circle.

## PARADISE CORNER.

He was a young man, happy, careless, and rich; she a girl of nineteen, whom the fates had made the reverse of all this; and each, bent on a widely different errand, was going swiftly round a London square one November afternoon just as gloom was creeping over the great city.

Gerald Oakley quickened his steps for a trifling fancy; he wished to take tickets for a theatre, and to secure the best places he could. Delphine Marston hastened her pace for the sake of reaching a fashionable West-end house of business at the earliest possible moment, hoping to receive the money due for a beautiful piece of art embroidery she had done to order.

It had been raining, and pools of water, which were half mud, stood in the street. Mr. Oakley thought nothing of these, however; all his effort was concentrated just then on obtaining two stalls in a good position for viewing the play; whilst Miss Marston's hurried steps were moved by the remembrance of an invalid mother and an empty purse.

Yes, empty! Two small silver coins—three-penny-bits—were all that remained to her till the lovely border she had been embroidering was paid for.

Swiftly each pursued his way and hers; and the result of their absorption in thought and of the flickering shadow cast by the street-lamp, added to the gathering gloom, was that they came into momentary collision at the corner of the square.

It would not have mattered, perhaps, for Gerald threw himself against the railing in order to break the blow of the young lady, but that the accident twisted the precious packet containing the art embroidery right into the midst of a pool of water glistening under the lamp-post.

"Are you hurt? Pray pardon my carelessness. What can I do to repair it?" exclaimed the young man, hurriedly, deeply distressed at being the occasion of the accident.

But poor, lovely Delphine was far more distressed than he was, and her beautiful eyes strained a wild glance at the brown paper covering in which her work was enveloped. An instant was sufficient to tell her that one corner had been soaked in the pool just enough to make her employers regret it just enough to bring misery, almost ruin, to the poor girl. She uttered an agonizing cry, and burst into tears despite her efforts to the contrary.

"What is it?" repeated the young man, now in real consternation. "Have I spoiled your parcel by my unpardonable haste? Let me do anything I can do to repair my fault."

For Gerald Oakley was as good-hearted a young fellow as ever breathed, and he half-divined the real state of the case when he perceived the trouble into which this young girl was thrown by observing the damaged paper which contained, doubtless, something valuable.

Necessity and despair are two masters who do not admit of much fencing as to the truth; and Delphine, thinking of her mother so helpless and entirely left to her care, faltered out:

"It is some art embroidery which is spoiled by the wet. I was taking it to the shop I work for. Oh, sir, you ask what you can do. Will you buy this embroidery at a very reduced price? It would form the border for a chimney-piece or for a table-cover."

"Certainly I will buy it; in fact, my sister wants two or three borders I know. Let us take them of you instead of going elsewhere. Of course I will buy this one now, but at the full price, not at a reduced one. Let me ask your address, and I will send a messenger to-night, that is if I have not enough money with me to pay for it."

Delphine looked up and thanked him heartily. "My mother and I lodge two or three streets from this," she said. And then she named the modest sum of two pounds for her embroidery, which was very beautiful.

"Allow me to give it to you now," said Gerald, removing his hat, and regarding with growing interest this lovely, penniless, friendless girl, who looked like a lady, and who was earning her bread in this precarious way.

"I must learn her address. My sister Connie might help her," ran swiftly through his brain. Aloud he courteously explained that his sister would be happy to call at the lodgings and give her some orders, upon which Delphine's sweet voice named the street and the house in which she lived, after which he and she went their different ways.

But young Oakley no longer thought of securing his stalls for the theatre, that could be done presently, for the vision of the girl who had just quitted him entirely filled his mind.

"So young, so beautiful, and to have to earn her own living like that! To suffer such agony for fear of the loss of two pounds! What should I feel if Connie was in such a strait? Oh, we must try and help her!" thought he.

Then he stood under a lamp-post reflecting, and finally walked off in the direction of the address given him.

Ten minutes took him to the house where Delphine lodged, and a second sufficed to show him that she and her mother were domiciled at a baker's. He entered the shop, bought something he did not want, and then made an inquiry:

"He had promised to ask for his sister" (he was inventive you see, reader) "if two ladies, Mrs. and Miss Marston, lived there?"

"Oh yes, sir," answered the tidy shopwoman, "and very nice ladies they are, too, only so poor

now that the young lady has lost her Italian lessons, which used to bring her in something regular."

"What! she teaches Italian?" asked Gerald, becoming more and more eager to find out all he could concerning the girl whom he had just encountered.

"Yes, Mrs. Marston is an Italian lady. That's how it is her daughter knows the language so perfect, sir," replied the woman who was behind the counter.

"But why did Miss Marston lose her pupils, then?" asked Gerald.

"They went abroad, sir; an 'tisn't everyone as wants to learn Italian. I do wish she could get some more lessons, that 'ud set them up again."

"Why, I know a lady who would give anything to find a good Italian teacher!" exclaimed he (ag-inventing, and relying on his sister Connie's penchant in his charitable designs); "indeed," continued he, "I want to take a few lessons myself before I go to Italy next spring."

"Best take them now, sir," returned the shopwoman, smiling. "Them foreign tongues isn't learnt in a day. November 'ull soon slip away, and spring comes after winter."

The young man smiled, saying aloud:

"That's very true, so I and my sister will call to-morrow."

To himself he repeated the poet Shelley's exquisite lines, containing so much meaning:

"Oh! wind, when the winter comes,  
Can the spring be far behind?"

"Will it be so for this young girl? Can I and Connie together lift her out of her bitter winter into spring?" thought he, as he thanked the woman, gave her his card, and uttered a courteous good night.

"Well, that's as pleasant a looking gentleman as ever came into our shop!" said she to herself, looking after him. "I'll take up the card this moment. Maybe it'll cheer that pretty Miss Delphine, and put a few roses into her cheeks."

"I do think I've brought you a bit of good fortune, for I believe just through my chatter I've got you some Italian lessons. A gentleman and a lady are going to call about it to-morrow, and here's his card."

Delphine, and indeed her mother, were quite excited at this news. It seemed to promise greater freedom from the anxiety which was killing them both.

"Mr. Gerald Oakley," murmured Delphine, reading the card, but in nowise connecting this name with that of the stranger who had been so ready to help her that evening. He had spoken of ordering embroidery; he did not know that she gave lessons in Italian.

And thus it came to pass that she was taken quite by surprise when the next day, towards noon, a young lady walked in, followed by the gentleman whose acquaintance she had made last night in so unusual a manner.

Connie Oakley, who generally aided her brother in all his plans and schemes, was fascinated by the sight of Delphine. The girl was so graceful, and added all the charms of Italian beauty to the refinement of English loveliness.

"Gerald must not come here too often! He will be falling in love with her!" thought Connie. And we need not blame her for desiring to spare her only brother from the difficulties which attend a *misalliance*.

However, she resolved to go cordially through this interview, and then to tell her brother plainly, as they walked home together, that he must avoid all appearance of scandal for the young lady's sake, and leave her to call, whenever it was necessary, on the Marstons.

But how our good designs and wise plans may be upset in a moment! Even whilst Connie Oakley was settling this prudent line of acting in her own mind, her brother overruled it in an instant.

"Connie," said he, "Miss Marston can give you and me Italian lessons together. I had decided to take some, and to work hard before I go out to tour about Italy in the spring. It is so stupid not to be able to speak to the peasants; one loses half the enjoyment."

Poor Connie! she had already said how delighted she should be to improve her Italian; but she was in nowise delighted to do so at the cost of her dearly-loved brother losing his heart to this stranger who earned her living by dint of hard work, and who lived over a baker's shop.

"Well, we can settle that later on," stammered she, unable entirely to conceal her distaste to Gerald's plan. But Gerald, intent on ingratiating himself with Delphine and her mother, and in discovering in what other way he could be of service to them, did not perceive his sister's coldness to his suggestion.

"There are the Smithsons, Connie," said he; "I know that Margaret Smithson began Italian last year, and gave it up because her governess went back to Italy."

"You are very, very kind," said Delphine, gratefully, quick to perceive how anxious he was to help them.

It was his sister who shortened the interview, and who read him a short homily on prudence as they returned home.

"You know, dear Gerald, you must not take these lessons. It will not be quite the thing. Nor must you go to Mrs. Marston's lodgings."

"Why not?" cried he, surprised, though at the same instant an answer flashed into his brain.

"Young gentlemen cannot ask beautiful young ladies to be their instructors," said Connie. "If not for your sake, Gerald, be wise for hers. Suppose she fell in love with you?"

Gerald whistled, coloured, and promised to relinquish the Italian lessons.

"Though merely out of deference to you my sage sister. For that and that alone. I am not such a vain fellow as to dream that this lovely Miss Marston will break her heart for my sake whilst I should be murmuring her soft mother tongue. No matter; have your wish! Good-bye to the Italian lessons; only manage to make it up to her in some other manner."

"Good, dear boy!" exclaimed Connie. "That I will do you may be sure."

With an easy heart she made all arrangements for the lessons, and (incited by her brother) ordered three borders for chimney-pieces. Delphine had abundance of work now; but as she sat at her embroidery she thought how much she should like to see Mr. Oakley again; but he had said he too would take less lessons, but he never appeared.

And Gerald? He also longed to see again that lovely, incomparable young creature who had so moved his interest and pity; but how could he break his word to Connie? No; he would not do that, but he had more than once strolled at dusk down the street in which Delphine was located, and on two occasions fortune had favored him so far that he had obtained a distinct view of her—once as she entered the baker's shop, and at another time as she passed out.

How he wished to go forward! to exchange a word with her! He dwelt continually on her image, and that which his sister dreaded had come to pass. Love had blossomed in his soul for the penniless Delphine. One evening, when December's snows were falling, he sat late in his own room, dreaming of his future. The young man was restless and ill at ease, knowing that it would give great pain to his family if he asked the hand of this friendless girl, of whose antecedents he knew nothing. Ought he not to think something of his mother—of Connie? And might not happiness fly away when the irrevocable step was taken; but more and more he thought that he would take that step, confess all to Connie, fall on his knees before Delphine, and whisper to her that he had loved her ever since he and she met in the gloomy London street.

Midnight sounded! This night was a sort of era in his life; for the cousin from whom he had inherited his wealth, and who had died five years ago, had left with his bequest a letter, enjoining him to open it after the lapse of five years, on the anniversary of the testator's death, at midnight, when in complete solitude.

The hour and the time had arrived to-night; the secret he was to learn would soon be in his possession. The life of his relative, now dead and gone, had been a fair and open career, full of kindnesses and courtesies. It could not, then, be a dreadful deed he was to learn from the hand now inactive for ever. Nevertheless, the young man opened the envelope with a certain thrill of emotion.

"Po'r Horace!" murmured he, "I wonder if I am to learn a love secret? He never married."

His eyes were soon fastened on the page; his cheeks flushed, his brow knit.

"What was this he saw before him?"

"I wish to let some time pass before you read this, for time softens us and gives future possibilities. Besides, you are so impetuous, you might refuse to take my bequest unless you had opportunity first for reflection and for seeing that you are the person who ought to administer it when I am dead and gone."

"Then there is a secret!" broke from Gerald's lips when he had read thus far.

Yes, there was, indeed. And as he read on he learned that once—when boyhood trenched on manhood—at an hour when sorely, cruelly tried, his dead cousin had yielded to temptation, and had used the sum of twenty pounds belonging to his employer, and entrusted to another, a sum he knew he could replace within a week. This employer was then absent; it was the most unlikely thing in the world that the fraud would be discovered.

But the unlikely thing occurred. His employer came home three days before he was expected. Gerald's cousin was absent for a few hours—accounts were called for the twenty pounds were missing. In vain the young man to whom the money had been entrusted insisted on his innocence—declared that he had placed the money safely in his desk—though he had certainly neglected to lock it immediately. His dishonesty was proved in his employer's mind, and the real culprit found, on his return, that his friend had been dismissed, and had disappeared. Even now, however, he believed, he hoped, that he could remedy the disaster. To confess his crime would be destruction for this he had not courage—but he would (so he thought) repair his fault. He would find his friend; he would pretend that he had found the money in the desk, in a hidden recess together they would tell their story to the offended gentleman, and gain reinstatement for his friend! He could not do more for the sake of those for whom he had sinned—but oh! it should be a life-long lesson for the future.

But never—never did his friend return. All advertisements, all efforts to trace him were fruitless. The twenty pounds were restored the corner in the desk shown—the employer convinced that he had been hasty, but this did not bring back the injured youth.

Years went by, and the one who had injured him rose by rapid degrees to prosperity; but, all unknown to others, he carried a canker in his heart, for never—never had he other opportunity of making reparation. And as he lay dying he penned this confession on to his young cousin, enjoining him to pay a sum of six thousand pounds, if he should ever have the opportunity, to any child or grandchild of Wilfred Marston.

Marston! The hot blood rushed over Gerald's face. Was Delphine Marston a relative of the injured man? Oh! he must now see and talk to Delphine—he must ask her a thousand questions! Rushing to his sister's room—how could he wait till morning?—he knocked, and was delighted to find that Connie, like himself, had been keeping vigil.

"What has happened, Gerald?" cried she.

"Read," he answered, thrusting the letter into her hand. "You remember what anniversary this is, I am sure. Now must I not see and question her?"

"Her? Whom do you mean, Gerald?" asked Connie.

"Miss Marston. I must find out whether it is she to whom I am enjoined to pay six thousand pounds, the sum set apart and named in our cousin's will to be disposed of hereafter."

"Well, I suppose you must," admitted his sister, reluctantly. "Poor Horace! what a sad secret to carry with him through life!"

The result of this conversation was that Connie Oakley was preparing to accompany her brother next morning when she learned that he had already gone out. Yes! he had flown to Delphine's lodgings, and was now standing before her, agitated, handsome, enraptured. Delphine was alone, for her mother had ventured out this sunny winter's day; and she was no less agitated than he at this unexpected interview. Her color came and went, her slender fingers trembled.

And at sight of her all the young man's prudence was swept away. Did she care for him ever so little? Why should she be so moved at seeing him again? And she looked divinely fair, inexpressibly lovely! No; he could not live without her! He felt that his was an affection which, though born in a moment, would live to eternity. Since it was so, why should he delay his entreaty for her love in return?

"Miss Marston; Delphine!" said he suddenly, with passionate fervor. "I came here this morning to ask you two questions."

"Yes?" she articulated, by way of rejoinder, striving to maintain some appearance of polite indifference, though how her heart thrilled at hearing the word "Delphine" from his lips. And then he drew nearer to her; he took her hand.

"Have you not guessed, dearest," he whispered, "that I would ask for your hand—your love—and give you my name—my whole heart—all that I have in return?"

No! she had never dared to make so improbable a conjecture as this, and she lay speechless with rapture in his arms. It was bliss too deep for words—too great to imagine as her own. A good many minutes elapsed ere she was composed enough to look up and whisper back to him the confession that her affection, like his own, had sprung up from the very dawn of their acquaintance.

"We will christen that corner of the Square Paradise Corner, beloved Delphine," said Gerald, as he told her over again, in fervent words, the story of his love.

It was long before he or she remembered that other question he had come to make. What was her father's Christian name? And had she ever heard him tell the reason of his quitting England?

"For a great sorrow which befel him in his youth—a cruel suspicion. His name was Wilfred," answered Delphine.

"Oh, Delphine," exclaimed Gerald, "I have a story to tell, and you a fortune to receive—you and your mother." And her hand in his, the blissful girl listened to the tale of his cousin Horace's great fault and life-long repentance.

What an unimagined surprise it was for Mrs. Marston on her return home to find Delphine seated with Gerald Oakley, both of them looking so transfixed with their new-born happiness that she knew what words had been spoken between them, even before her daughter threw herself into her arms, weeping tears of joy. But this was not all. She was to hear also that her child was no longer without a portion, and well she knew that her daughter's love would provide that her own future years should be gladdened by ease and joy.

But there was no need for Delphine's care in this matter since her betrothed was eager to take every burden from her dear shoulders.

"Is she not my mother too?" said he. "Can I do enough to repair my poor cousin's wrong? Be sure your dear mother shall have a like provision to that my cousin wished set apart for any near relative of Wilfred Marston. What is the use of so much wealth if I am not to make those I love happy?"

And so Mrs. Marston left the baker's shop for a pretty home of her own in the country; and Connie, reconciled to the idea of receiving Delphine as a sister, acted as chief bridesmaid at the wedding.

I have it on good authority, reader, that as soon as Delphine's first lovely little girl was born she used to prattle to the child about the place where she first met "dear papa," and that as soon as ever the young lady could run alone she and Gerald took her to the London square and showed her the "PARADISE CORNER."

M.A.

"He who imagines he can do without the world deceives himself much; but he who fancies the world cannot do without him is under a far greater deception."

"Men of great talents, whether poets or historians, seldom escape the attacks of those who, without ever favoring the world with any production of their own, take delight in criticising the works of others."—Don Quixote.

**The Snow-fall.**

BY JAMES RUSSELL LOWELL.

The snow has begun in the gloaming  
And busily all the night  
Has been heaping field and highway  
With silence deep and white.

Every pine, and fir, and hemlock,  
Wore ermine too dear for an earl,  
And the poorest twig on the elm tree  
Was fringed in deep with pearl.

From sheds new roofed with Carara,  
Came Caaticleer's muffled crew,  
The stiff rails were softened to swan's down,  
And still fluttered down the snow.

I stood and watched by the window  
The noiseless work of the sky,  
And the sudden furies of snow-birds,  
Like brown leaves whirling by.

I thought of a mound in sweet Auburn,  
Where a little head-stone stood,  
How the flakes were folding it gently,  
As did robins the babes in the wood.

Up spoke our own little Mabel,  
Saying, "Father, who makes it snow?"  
And I told her of the good All father  
Who cares for us all below.

Again I looked at the snow-fall  
And thought of the leaden sky  
That arched o'er our first great sorrow  
When the mound was heaped so high.

I remembered the gradual patience  
That fell from that cloud-like snow,  
Flake by flake, healing and hiding  
The scar of that deep stabbed woe.

And again to the child I whispered,  
"The snow that husheth all,  
Darling, the Merciful Father  
Alone can make it fall."

Then with eyes that saw not, I kissed her,  
And she, kissing back, could not know  
That my kiss was given to her sister  
Folded close under deepening snow.

**Rebuked.**

An insolent and haughty manner affected because of one's wealth or position in society is always evidence of a coarse nature, and seldom receives an undesired rebuke. A young lady pupil of the late Prof. Morren made herself particularly obnoxious by her insolent bearing.

"I knew her mother in France," said the professor, whose broken English there is no need of producing here, "and she was a most exquisitely modest and unassuming woman. But the daughter was so insolent that she had to have a lesson, so I said to her,

"Will you be so good as to remain after the lesson? I have something to tell you."

"She stays, and in her haughtiest manner she says, 'You wish to speak to me?'"

"Yes. You are Miss So-and-So?"

"Yes."

"And you live at No. — Beacon street?"

"Yes."

"And your father is Mr. So-and-So?"

"Yes."

"And your mother is the lovely and sweet Mrs. So-and-So I have met in France?"

"Well?"

"Oh! I said. 'You are sure there is no mistake?'"

"No mistake! What do you mean?"

"I am exceedingly surprised that you come of such a family, and so well born."

"Sir!"

"I am much surprised. I have been sure you came of a new-rich family, some parvenu—"

"Sir!"

"You think, mademoiselle, I said, softening my manner, 'that haughtiness is aristocratic. Now you will pardon an old man if I remind you that the contrary is true. I have known your mother so long that I dare to be frank with you. You have been very insolent in the class.'"

"Insolent, monsieur?"

"Yes, mademoiselle. You have mistaken this for a mark of aristocracy. So does the daughter of the money-lender. You had much better copy your mother, your gentle lady mother."

"I made her my best bow, and left her to think about it. And she was a good girl afterward; a very good girl."

It is a pity this wise reproof could not be read by many a young girl to-day who foolishly fancies she is asserting her social position by an insolence which only proves that she is not sufficiently sure of her standing to cease to be troubled about it. It takes a good many generations to set one socially so high that one does not need to condescend to any human being.—*Boston Courier.*

**A Gentleman.**

When you have found a man, you have not far to go to find a gentleman. You cannot make a gold ring out of brass. You cannot change a Cape May crystal to a diamond. You cannot make a gentleman until you first find a man. To be a gentleman is not sufficient to have had a grandfather. To be a gentleman does not depend on the tailor or the toilet. Blood will degenerate. Good clothes are not good habits.

A gentleman is just a gentleman, no more, no less—a diamond polished that was first a diamond in the rough. A gentleman is gentle. A gentleman is modest. A gentleman is courteous. A gentleman is slow to take offence, as being one who never gives it. A gentleman is slow to surmise evil, as being one who never thinks it. A gentleman subjects his appetites. A gentleman refines his tastes. A gentleman subdues his feelings. A gentleman controls his speech. A gentleman deems every other better than himself.

Sir Philip Sydney was never so much of a gentleman—mirror though he was of English knighthood—as when, upon the field of Zutphen, as he lay in his blood, he waived the draught of cool spring water that was to quench his dying thirst in favor of a dying soldier.

St. Paul described a gentleman when he exhorted the Philippian Christians: "Whatsoever things are true, whatsoever things are lovely, whatsoever things are of good report, if there be any virtue, and if there be any praise, think of these things." And Dr. Isaac Barlow, in his admirable sermon on the callings of gentlemen, pointedly says: "He should labor and study to be a leader unto virtue and a notable promoter thereof; directing and exciting men thereto by his exemplary conversation; encouraging them by his countenance and authority; rewarding the goodness of meaner people by his bounty and favor; he should be such a gentleman as Noah, who preached righteousness by his words and works before a profane world."

### The Quadrumana.

L. P. GRATACAP.

No group of animals has from the earliest days attracted more curious attention than the monkeys. Their grotesque mimicry of man, their innate proclivities to mischief, their unconscious humor, their agility, have drawn to them the interest of the populace, while their structural affinities and their enigmatical relations to the human race have evoked from science a patient study, which, as directed by different motives, leaves the quadrumana to-day "a vexed question" in the discussion of animal evolution.

The old Egyptians placed their images in their elaborate pantheon, the mystical Hindoos built dwellings for them, the Romans taught themselves anatomy by their dissection, the Arabs

looked upon them as the progeny of Satan, the ancient dwellers in Mexico wrought their figures in frieze and ornament, and to-day sightseers linger longest where, in our menageries, they gambol and chatter; while over their problematic claim to be considered man's lineal ancestors the savants and doctors fight unweariedly. Perhaps the first mention of these interesting creatures we have found among the ancients, and the one most familiar, is in the chronicle of Hanno, the Carthaginian voyager, who visited, over 2,000 years ago, the west coast of Africa. He speaks of finding the "goutlai" on an island, whom he and his men chased, but could not overtake, and at last only secured three females, who bit and scratched their captors so vigorously that they had to be slain, and their skins were afterwards kept in the temple of Juno at Carthage. Hanno speaks of these strange inhabitants as

wild men, with hairy women, and he doubtless met a colony or pack of anthropoid apes.

Pliny writes: "On the Indian Mountains to the south, in the land of the Catharcludi, there are satyrs. These are the swiftest of creatures, sometimes going on all fours, sometimes upright like men, and they are so active that they can only be captured when old or sick."

In the past geological stages of the earth's history, monkeys were much more widely distributed than to-day, and among the forests of France and England they flourished in nimble groups, where now only careful protection insures their immunity from decline and death. The quadrumana belong to the warm regions of the globe. They live chiefly within the tropical limits, though reaching northward from Africa into Europe at Gibraltar, where a Uracaque has

effected a settlement among its rocks and ledges; and again another species in Asia has extended its habitat to Japan, while as an extra limited example they reach in South America to Paraguay. They are all included, without exception, between 37 deg. north, and 35 deg. south latitude. They exhibit the greatest fortitude under colder conditions upon the mountain sides of their natural domains, and are occasionally met at elevations which are surprising.

A species does not cover a wide geographical area, but is distinctly limited. The orang-outang is found in Borneo and Eastern Sumatra; the chimpanzee and the gorilla on the west coast of Africa; the tailless gibbons upon the Bay of Bengal, in Sumatra, Java. Among the Semnopithecus, as Sir Emerson Tennent says (quoted by

trees. Here he leaps with a buoyant delight that defies description or portraiture, swinging, hanging, with innumerable gesticulations and grimaces he passes from bough to bough, and will traverse long distances in this way with a grace and ease that has been the admiration of writers and artists, whereas, when put upon a level ground, his slow, aimless and ungainly movements only excite ridicule and disgust.

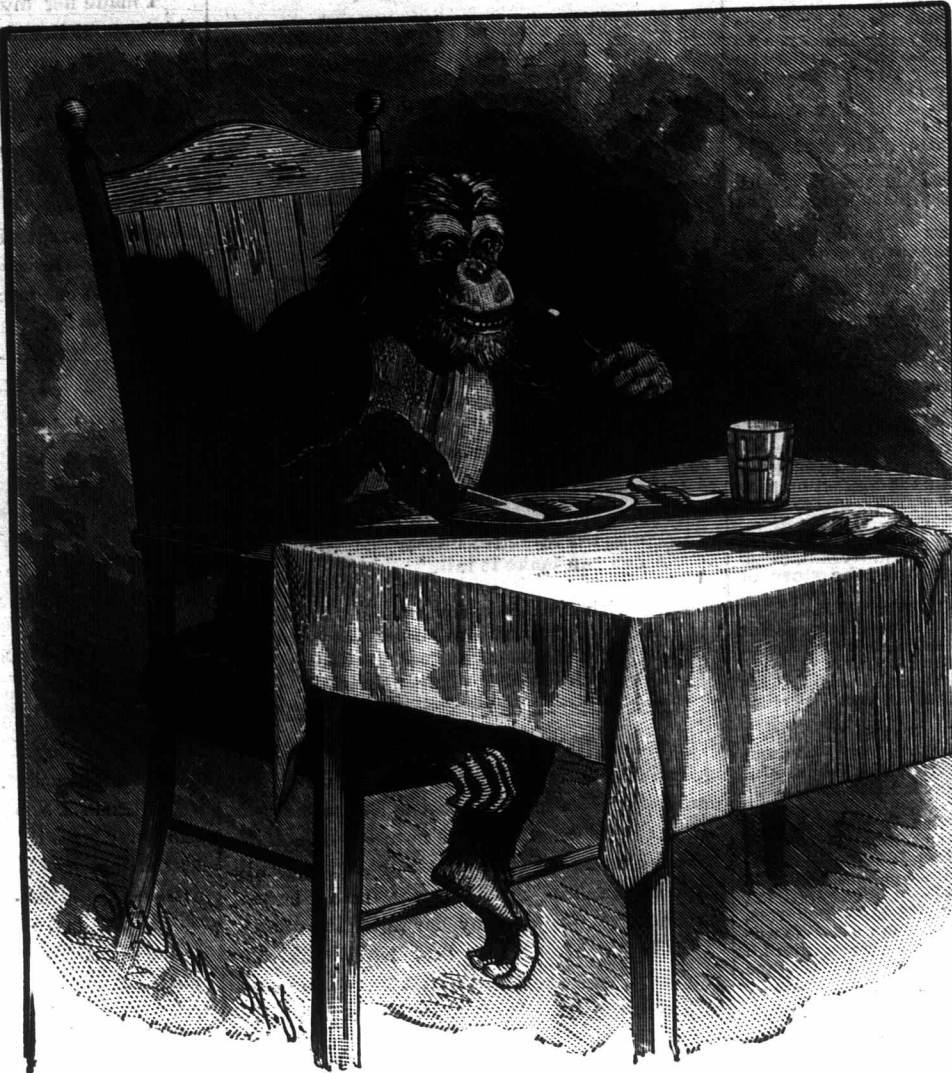
The technical definition of the quadrumana, or the four-handed (*quatuor* four, *manus* hand) animals, is easily understood and remembered. They form the thirteenth order of mammals, are comprised with man among the primates, and are distinguished by having the innermost toe of the fore limbs (thumb), if present, also usually opposable to the other digits. The incisors are

four in each jaw, two right and left, and the molars similarly four. The divisions of this order are very natural, and, as pointed out or defined by Owen, are: 1st. The Strepsochima or twisted nostril group, including the true lemurs, centering in Madagascar. 2nd. The Platyrrhina, or group with nostrils placed far apart, thumb of four feet, if present, not opposable to other digits, embracing solely the South American monkeys. 3rd. The Catarrhina, with nostrils oblique, close together, thumbs all opposable; the highest section, among which are placed the anthropoid apes, without tails; while in other members of this section this member has lost the prehensility which among the Strepsochimes and Platyrrhines make it the most efficient instrument for locomotion.

It would be of interest to review even briefly some of the characters of the attractive lemurs, whose haunts are in the

fruit-laden forests of Madagascar, where in the deepest seclusion they form their bands and move with gliding and noiseless activity among the highest branches; or describe some of the singular spider monkeys, howling monkeys, capuchins and squirrel monkeys of South America. But we must attempt to explain the state of that interesting question asked so commonly, Have we come from monkeys? and then acquaint the reader with some facts about the chimpanzee and the orang-outang, whose admirable portraits accompany this notice. To make even these points intelligible may exceed our limits.

The question of the origin of the human race has attracted attention for ages, and naturally it was suggested that some connection between men and monkeys might be discovered leading to distinct ideas on this subject. Darwin epitom-



MR. CROWLEY, OF CENTRAL PARK MENAGERIE, N. Y.

Murray), "each separate species has appropriated to itself a different district of the wooded country, and seldom encroaches on the domain of its neighbors," being found in Ceylon, India, etc. The baboons and mandrills are generally peculiar to Africa, though aberrant forms are found upon the Philippine Islands. The New World monkeys are confined almost altogether to South America, though some species penetrate into the northern continent as far as Tampico, and naturalists are yet expectant that in unexplored recesses of Central America new species may be discovered. The New World monkeys spread over a wider territory, and furnish the greatest number of mammalian species within their region, the mammalian fauna of South America being singularly meager and homogeneous. The natural home of the monkey is among the

ized the views of earlier investigators, and added many new lines of fertile study and suggestion. Structurally, men and the quadrumana belong to the same order—the primates; and it is insisted that this structural resemblance predicates a similar structural origin or some common progenitor. The popular misapprehension that writers holding this view suppose that man is a lineal offshoot or child, through intermediate links, of our anthropoid apes is quite unjust to science. Our physical frame is most heterogeneously, so to speak, allied to the entire monkey race. We can claim, anatomically, no direct

proach man in some respects nearer than the Old, and again and again it has been shown that the child monkey is nearer the child man than the adult monkey is to the adult man—a significant divergence through age. In fact, the aggregate features of the human frame, when compared with their closest correspondences among the quadrumana, establish between man and these a network of intercrossed relationships.

Hence the proposition is, that man has issued from the group of the quadrumana genealogically at some far distant period, and descended from a creature whose physical construction had begun

garded, has started a vital growth in nature, which, progressing and widening under the control of fixed laws, peopled the world with all its past and present inhabitants without invoking at any moment, in the long train of sequences thus inaugurated, any special act of creation. Naturally, man is but one, though the highest, of the occupants of this globe, and is subjected to the same law of origin.

Was war ein Gott der nur von aussen stiesse  
Im Kreis das All am Finger laufen liesse,  
Ihm ziemt's die Welt im Innern zu bewegen,  
Natur in Sich, Sich in Natur zu hegen,



THE ANTHROPOID ARE AT HOME.

descent from any known species. As Urwart says:—

“Some of the lower apes resemble man more than they do the anthropoid ones in the length of the arm and hand compared with that of the spine; while in the length of the leg without the foot, compared with that of the arm without the hand, he is equalled only by certain lemurs. The baboons (the lowest of the anthropoids) exceed all the higher apes in resemblance to man in the sigmoid curvature of the spine,” and in many other particulars, unnecessary to mention here. Some, indeed, of the New World monkeys ap-

a variation which resulted in a line of descent of which man, as at present made, represented the climax. At the same time the close likeness of the anthropoid apes to man is very obvious, and some recent cases of hairy and tailed men might be regarded as *reversions* to a simian ancestry. However, the proposition cannot be, or has not been, absolutely proved. It rests upon an inherent probability based upon a study of evolution in other branches of animal life, and is bound up logically in what has been called the *monistic* view of creation, viz., that a single impulse at a moment of time, however it may be re-

So dass was in Ihm lebt und webt und ist,  
Nie Seine Kraft, nie Sein Geist vermisst.—Goethe.

So far as regards man's physical characters, his psychic part is less easily to be imagined as derivative from the brutal and sensual disposition of the quadrumana. As Hartman says:

“A great chasm between man and anthropoids is constituted, as I believe, by the fact that the human race is capable of education, and is able to acquire the highest mental culture, while the most intelligent anthropoid can only receive a certain mechanical training.”

The anthropoid apes are the gibbons, gorilla,

orang-outang, and chimpanzee. The orang-outang, of which an admirable group, mounted by Mr. Hornaday, the hunter and writer, is now in the American Museum of Natural History, and is shown in our artist's vivid drawing, inhabit the islands of Sumatra and Borneo. They live in the dense forests in the low, swampy districts, traveling with considerable speed through the summits of the trees, and avoiding the drier hill country. Their names simply means *wood-man*, indicative of their habits. They are hunted by the natives and sold to the Chinese. They inhabit the topmost part of the trees, making rude and shallow cradles of leaves and twigs in which they sleep, rising from their beds at 9 a. m. and retiring at 5 p. m. Except at night, they seldom descend to the ground. Their gait is awkward, and they display none of the agility of the chimpanzee or gibbon. Their long arms are possessed of great strength, and amid the durion trees, whose fruit they love, they can be seen performing feats requiring great muscular strength. As many as four species have been enumerated by some writers, and only one by others. Those figured in our illustration are not commonly, or not at all seen in books. The fleshy disk in the male is a most striking feature, and would seem to justify a specific distinction. They are slow, inert, and generally timid, but in close quarters or thoroughly aroused, fight with ferocity.

The chimpanzee inhabits the west tropical coast of Africa, and is a species made familiar to our public by the general favorite, Crowley, under care of Mr. Conklin, at the Central Park Menagerie. This interesting fellow has divided with Jumbo the favors of popularity, and certainly with his antics and devices affords capital amusement to the sightseers who throng about his cage.

The disposition of the chimpanzee under captivity varies greatly, some being recorded as gentle and uniformly amiable, others uncertain, capricious, and violent. Mr. Crowley's expression of face is very rueful at times, and changes from a laughable state of lugubrious contemplation to one of whimsical curiosity in the appendages and property of his visitors. With his keeper, Mr. Cooke, he seems generally mild and loving, but his malice breaks out occasionally against some teasing spectator, and he bounds and rages with impotent struggles, suggesting very unpleasant consequences if the offenders were within his reach. He has been taught to use a spoon, and sits in a most comic manner at a table with a gravity and absurd aspect of comfortable retirement that is irresistible.

The gorilla has been successfully kept in captivity in Berlin at the Aquarium, and gained an excellent name for friendliness and docility. A famous specimen kept there died of galloping consumption in 1877. The chimpanzee Urafuca was also an inmate of the Berlin Aquarium, and was greatly prized for her gentleness and general amiability. Of her death, Hartmann writes:—

"She put her arms round Schopf's neck when he came to visit her, looked at him placidly, kissed him three times, stretched out her hand to him, and died."

The real pathos of this incident, more than a hundred tales about monkey cleverness, would reconcile us to acknowledging a relationship with these remarkable creatures.

"Blessed confidence of childhood—religion itself has no profounder lesson—no more eloquent attestation of the first cause."

#### A Low Voice in Woman.

Yes, we agree with that old poet who said that a low, soft voice was an excellent thing in woman. Indeed, we feel inclined to go much further than he has on the subject, and call it one of her crowning charms. No matter what other attractions she may still have; she may be as fair as the Trojan Helen, and as learned as the famous Hypatia of ancient times; she may have all the accomplishments considered requisite at the present day, and every advantage that wealth may procure, and yet if she lack a low, sweet voice she can never be really fascinating. How often the spell of beauty is broken by coarse, loud talking. How often you are irresistibly drawn to a plain, unassuming woman, whose soft silvery tones render her positively attractive. Besides, we fancy we can judge of the character by the voice; the smooth, fawning tone seems to us to betoken deceit and hypocrisy, as invariably as the musical, subdued voice indicates a genuine refinement. In the social circle how pleasant it is to hear a woman talk in that low key which always characterizes the true lady! In the sanctuary of home how such a voice soothes the fretful temper and cheers the weary husband! How sweetly such cadences float through the sick chamber! and around the dying bed with what solemn melody do they breathe a prayer for a departing soul!

#### What Cloves Are.

Cloves are the unopened flower of a small evergreen tree that resembles in appearance the laurel of the bay. It is a native of the Malacca or Spice Islands, but has been carried to all warmer parts of the world, and it is now cultivated in the tropical regions of America. The flowers are small in size and grow in large numbers, in clusters to the very end of the branches.

The cloves we use are the flowers gathered before they are opened and whilst they are still green. After being gathered, they are smoked by a wood fire and then dried in the sun. Each clove consists of two parts of a round head, which are the four petals or leaves of the flower rolled up enclosing a number of small stalks or filaments; the other part of the cloves is terminated with four points, and is, in fact, the flower-cup of the unripe seed vessel. All these parts may be distinctly seen if a few cloves are soaked for a short time in hot water, when the leaves of the flower soften and readily unroll. Both the taste and the smell of cloves depend on the quantity of oil they contain. Sometimes the oil is separated from the cloves before they are sold, and the odor and taste in consequence much weakened by such unfair proceedings.

"There never was a saint in the form of a man that wasn't secretly flattered by the thought that he might inspire a passion if he set himself to try."

"Life sometimes overlays the soul in the face with disturbing hieroglyphics which gentle death smooths away, showing worthy writing there."  
—*Anne Sheldon Coombs*.

"Should even our friends deceive us, though we have a right to be indifferent to their professions, we ought ever to retain a sensibility for them in misfortune."  
—*Rochefoucauld*.

A thin coat of varnish applied to straw-matting makes it more durable and adds to its beauty. To purify a room of unpleasant odors, burn vinegar, resin or sugar.

#### Minnie May's Department.

MY DEAR NIECES,—The first of January finds us stopping to look back over the past and on into the future, trying, if true to ourselves, to learn by the mistakes of the past what is to be the right path in the year to come. We begin to keep a bran-new diary, and make a lot of good resolutions. "Life is full of new beginnings;" and though in time they may drift into obscurity, yet we must be all the better for making the effort, which ought to have some final effect on our character and disposition. If we determine that this new year we now enter shall be a happy one, we are more than half way towards that desirable end. So I can find no better words in which to wish all good wishes to our many friends, remote or scattered though they be, than these few lines taken from an exchange:—

"The New Year comes with flying feet,  
And 'ears upon its journey fleet  
A million wishes dear and sweet.

From all this New Year's precious store  
Of wishes, as I scan them o'er,  
I choose for thee but three; no more.

These three shall more than thousands prove,  
For they shall draw thy heart above—  
Their names are Service, Trust and Love.

Trust God, and trust will gain God's best;  
Love God, and learn how love is blest;  
Serve God, and find in service rest."

We regret having to postpone decision on the "quotations" until next month, owing to press of business at this Christmas and New Year season. So that any of our readers who were unable, for the same reason, to complete their work for competition in December, may send in their communications by January 20th.

MINNIE MAY.

#### The Work Basket.

TAM-O'-SHANTER CAP—TUFTED CROCHET.—Materials required: 2 oz. of single Berlin wool, a crochet hook No. 9 and a silk pompon. Silk knitting arrasene of a soft shade of ruby, white or blue, will make a very beautiful cap. The cap is worked in sections of tufted crochet with three rows of tricol stitth between each section.

Make a chain of 22 stitches, work two rows of plain tricol (that is work up and off twice). 3rd Row—Work up the back perpendicular loops of the stitches, work off in the usual way. 4th Row.—Take up the stitches in the usual way, work off two loops, work 5 chains. Repeat from the beginning of the row until you have worked off all the stitches. 5th Row—Work up all but the two last loops, work off as directed for the last row, work 8 more rows of tufts, working upon two less stitches each time; this makes the section wide at one end and pointed at the other. 14th Row—Work up 21 stitches; there will be 22 loops altogether on the hook; work off in the usual way, this finishes one section; repeat from the second row. When you have worked 9 sections, join the first and last sections together by sewing with a needle and wool.

For the head-band:—1st Row—Work into the wide side of sections 1 double crochet into each stitch. 2nd Row.—One double into a stitch, pass over one stitch and repeat all round. 3rd Row—One double into each of ten stitches, pass over one stitch, and repeat all round; this tightens the band a little. 4th to 6th Rows—One double into each stitch of previous row, work each round a little tighter than the last, to draw the band in. To draw up the cap at the top work a long loop through each stitch at the



pointed side of sections. Keep all the loops on the hook and draw through all together, fasten off the wool firmly, and sew a silk or wool pompon on the loops in the centre of the crown.

**INFANTS' KNITTED GAITER.**—Materials required:—2½ oz. white and ½ oz. of blue peacock fingering; 4 pins No. 14. The gaiter is knitted lengthwise. Cast on 46 stitches with the wool; this is for the stripe at the side of leg. First to 4th rows, knit with blue wool; 5th to 15th rows, knit with white; 16th row, knit to end of row, cast on eight more stitches, commence to work on the 54 stitches for eighteen more rows; 35th row cast off eight stitches; 36th to 57th rows knit to shape the calf; knit 24, turn, knit 24, knit 23, turn, knit 23, knit 22, turn, knit 22, knit 20, turn, knit 20, knit 18, turn, knit 18, knit 16, turn, knit 16; knit 14, turn, knit 14; knit 12, turn, knit 12; knit 10, turn, knit 10; knit 12, turn, knit 12; knit 14, turn, knit 14; knit 16, turn, knit 16; knit 18, turn, knit 18; knit 20, turn, knit 20; knit 22, turn, knit 22; knit 23, turn, knit 23; knit 24, turn, knit 24; 58th to 66th rows: Knit on all the stitches; cast off; sew the two sides together. Now, with four pins pick up the stitches round the top of leg. First row: Wool forward, knit two together, knit two alternately all round; 2nd row, knit 3rd to 14th rows, knit three and purl two, alternately all round, then cast off. With a crochet hook and blue wool work a row of scallops round the top of leg and edge of foot. 1, double into a stitch, pass over one stitch one treble into the next, \* 3, chain, 1 double into the first, 1 treble into same stitch the last was worked into, repeat from \* twice more, pass over one stitch, and repeat from the beginning of the row. A crochet chain of blue wool, finished by a tassel, is passed through the row of holes below the ribbed part of top of leg; a strap of leather one inch wide is sewn to each side to pass under the sole of the boot; a cross-stitch with a needle and white wool is worked down the stripe.

**SOFA PILLOW.**—A very effective and quickly-made sofa pillow is made by covering the cushion first with selicia or some similar material, then put over it a bright, pretty silk handkerchief, a cardinal, for instance, and turn one corner (on which may be worked some design), back toward the centre. Cover the unfinished corner of the pillow with black velvet, and a handsome ribbon bow to match the color of the handkerchief; finish the edge of the pillow with a silk cord of bright gold or any contrasting color, and line the under side with Canton flannel.

**A PRETTY PEDESTAL,** on which to stand a basket of flowers, a flower pot, or marble ornament, has the top, base, upper and lower parts of the shaft covered with red silk plush. For the centre is a band of black wrought in irregular, zig-zags of gold thread, in the Japanese fashion, with flowers and foliage in silk embroidery.

**A PARTY BAG** for carrying slippers and fans can be made of brocaded silk lined with sateen, shaped like a long silk purse, with a slit in the centre, gathered to a point at each end, tipped with tassels and held by a bone ring crocheted over with coarse silk, or if a more elaborate one is desired, use old gold plush and line it with blue silk.

“Teach him to use wealth, not worship it, or become its victim. That's the secret of happiness with riches.”—*The Money Makers.*”

**Answers to Inquirers.**

**MADGE.**—Young ladies of seventeen should wear long dresses, and may dress the hair high on the head if it suits their style of face.

**Mrs. W. A.**—The mixture of rum and bitter apples is excellent for making the hair grow; it is apt to slightly darken the hair. The proportions are as follows: Steep half an ounce bitter apples in half a pint of rum for three days, then strain through fine muslin and bottle it; apply with a sponge to the roots of the hair daily.

**INQUIRER.**—1. The ingrowing of your toe-nail may be caused by wearing tight boots or shoes, or by an improper mode of cutting the nails. Procure boots that will accommodate the toes and give the nails perfect freedom from pressure. Then scrape with a piece of glass or a knife, the whole length of the middle of the nails, until they become tender. In this condition the edges of the nails are gradually withdrawn from the flesh, and the difficulty is removed. Toe nails should be cut straight across, or slightly concave. They should never be trimmed at the corners. 2. To make good hard soap for common use, take twenty gallons of clean rain water, seven pounds of soda ash, three pounds of the best unslacked lime; put this in an iron kettle and let it boil about ten or fifteen minutes, then dip it out into a tub and let it settle; wash out the kettle very clean, and when the lye is perfectly clear dip it off carefully back into the kettle. Be sure not to get any lime into the lye. Then put in fifteen pounds of grease. Sometimes it will be a little too strong and will not thicken well; then put a bucket of clear water in it.

**SUFFERER.**—We here give you a simple remedy for chapped hands which we find highly recommended in an old magazine: “Take common starch and grind it with a knife until it is reduced to the smoothest powder. Take a tin box and fill it with starch thus prepared, so as to have it continually at hand for use. Then every time the hands are taken from the suds or dish-water, rinse them thoroughly in clean water, wipe them, and while they are yet damp, rub a pinch of the starch thoroughly over them, covering the whole surface. The effect is magical.”

**YOUNG HOUSEKEEPER.**—1. To remove the stains on spoons caused by using them for boiled eggs, take a little common salt, moisten between the thumb and finger, and briskly rub the stain, which will soon disappear.

**Recipes.**

**NEW YEAR'S HICKORY-NUT CAKE.**—1 pound of flour, 1 pound of sugar, ¾ pound butter, 6 eggs, 2 teaspoonfuls of cream tartar, 1 of soda, ¼ cup sweet milk. Beat the cake thoroughly, then stir in a small measure of shelled hickory-nuts. Bake in a steady but not quick oven. This is a very fine cake.

**CURRENT CAKE.**—Beat 1 pound of fresh butter to a cream; take 1½ pound of sugar and 1½ of currants, washed and picked, and beat up the whites and yolks of 8 eggs; put in the sugar by degrees, then a pound of flour and the currants; add a gill of brandy, some candied orange and citron; beat the mixture till very light, and bake in pans.

**APPLE CHEESE CAKES.**—Pare, core and boil 12 apples with enough water to mash them; beat them up very smooth, then add 3 eggs, the juice of 2 lemons and some grated peel; ¼ pound of

fresh butter beaten to a cream and sweetened with pounded loaf sugar; beat all well with the apples. Bake in a puff paste and send it up like an open tart.

**PUFF PUDDING.**—Mix 1 pint of flour, a tea-spoonful of baking powder and a little salt with milk to make a batter; pour in a greased pan; put steamed apples or berries on top; then pour in more batter. Steam about an hour and a quarter. Eat with sauce.

**CHICKEN PIE WITH OYSTERS.**—Boil a good-sized chicken until tender, drain off the liquor from a quart of oysters. Line the sides and bottom of a large, round pan with crust; put in a layer of oysters and a layer of chicken until the pan is full. Season with pepper, salt, bits of butter and the oyster liquor; add some of the chicken liquor. Cover with a crust and bake. Serve with sliced lemon.

**A NICE SIDE DISH.**—Mince fine some cold veal, stew five minutes and put boiled rice around the dish; set in the oven to brown. Garnish with hard-boiled eggs.

**KENTUCKY POTATOES.**—Slice thin, put in a pudding dish, with salt, pepper and milk; bake half an hour, then spread bits of butter over the top and let stay in the oven a few minutes.

**Ring Out, Wild Bells.**

Ring out, wild bells, to the wild sky,  
The flying clouds, the frosty light:  
The year is dying in the night;  
Ring out wild bells, and let him die!

Ring out the Old, ring in the New:  
Ring, happy bells, across the snow:  
The year is going, let him go;  
Ring out the False, ring in the True!

Ring out the grief that saps the mind,  
For those that here we see no more;  
Ring out the feud of rich and poor,  
Ring in redress to all mankind!

Ring out the slowly dying cause,  
And ancient forms of party strife,  
Ring in the nobler modes of life,  
With sweeter manners, purer laws!

Ring out the want, the care, the sin,  
The faithless coldness of the times:  
Ring out, ring out, my mournful rhymes,  
But ring the fuller Minstrel in!

Ring out false pride in place and blood,  
The civic slander and the spite;  
Ring in the love of truth and right,  
Ring in the common law of good!

Ring out old shapes of foul disease,  
Ring out the narrow lust of gold;  
Ring out the thousand wars of old,  
Ring in the thousand years of peace!

Ring in the valiant man and free,  
The larger heart, the kindlier hand;  
Ring out the darkness of the land;  
Ring in the Christ that is to be!

ALFRED TENNYSON.

**Grains of Gold**

“The really happy people never analyze.”  
“God's first altar step, the mother's knee.”  
“The potent resolutions in life are taken suddenly.”  
“Morality is a word of wider meaning than common consent has made it.”  
“Insincerity has this weakness always, that it has no sure measure to gauge conduct or motives abstractly.”  
“We can sometimes pardon friends who bore or weary us, but we can never forgive those whom we bore or annoy.”

Uncle Tom's Department.

MY DEAR NEPHEWS AND NIECES,—“Time rolls his ceaseless course,” and again we are permitted to enter upon another year. As I sit by the cosy fire watching the shadows flitting to and fro, my heart grows tender with the recollections of by-gone years.

“When life was young, and hope was strong,  
And minutes sang a siren's song.”

You are now young, full of buoyant spirits, bright hopes, and laudable ambitions, and it could not be expected that you would sit and dream with Uncle Tom over the memories of early days, but would it interest you if he were to draw aside the curtain of his studio and show you one or two of the pictures he looks tenderly upon in the weird light and shadow of the Old Year embers. He will turn his thoughts from his own early days to those bright happy ones of the present which his nieces and nephews so heartily enjoy. The pictures I am about to show you have been suggested by one I saw recently in a Canadian art exhibit. Some of you have seen the picture, and wherein I do not describe accurately I trust you will pardon me, as I write only from memory. With hundreds of others I was moving slowly on, taking a passing glance at each display of artistic power, when I came to one picture which made me stand and gaze. I walked away from it, then back again, to make a more careful study of it. Would you like to know what interested me so much? Well, listen. A happy-looking, rosy-faced boy was lying in a most natural position—face downward—his feet represented as playing in the air. Where he lay seemed to be a beach, and with his wee fat forefinger the little man had drawn on the sand the outline of a ship. The artist with beautiful appropriateness had named it “The Dawn of Genius.” Now come with me and you will find out why I told you about that picture before you entered my “holy place.” See before you a picture. What! You say you see nothing but an indistinct outline—a shadowy something—you can not tell what. Look closely and tell me if you do not see a face appearing before you—earnest, thoughtful, yet merry withal—a book—another hand—a softer face—a laughing countenance—blue eyes—golden curls—closely cropped little heads—why there are two or three faces—many faces—the whole picture is full of faces! How strange! The picture seems as if not on canvas—away back as far as you can see, face appears behind face—hand clasps hand—open pages are being scanned—little lips move as if asking strange questions—those active brains are busy in thought. You want to know the name of the picture—the artist—and whose are the interesting faces. Oh, little self-flatterers, do ye not know yourselves? Don't you see its a magic scene, for Uncle Tom always likes fun at the gleeful New Year's time? You are represented in the mirror of his studio, and below it we shall write in letters of gold “The Dawn of Thought—1887.” My dear boys and girls, don't you know

“Those who toil bravely are strongest  
The humble and poor become great,  
And from these brown-handed children  
Shall grow mighty rulers of State.  
The pen of the author and statesman,  
The noble and wise of our land,  
The sword, the chisel, the palette,  
Shall be held by the little brown hand.”

And how are you to be prepared to act your part well, whether on the farm or in the workshop—at the anvil or in the pulpit—at the bench or in

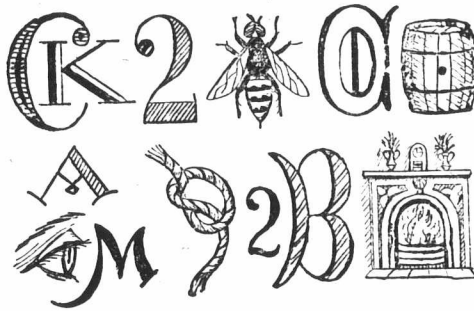
the laboratory—behind the counter or in the school-room, if you don't think—think of what you ought to do—and what you might do, ay, and of much you might leave undone—think of the mis-spent moments of 1886 and resolve to think and PRAY and ACT in the Happy New Year just ushered in.

Do your eyes turn wonderingly to that white-draped picture beside you—I shall draw the curtain some time, but not now. There are the bells ringing—ringing out the old—ringing in the new, and I must go. That the bells may ring in for my dear boys and girls, and of peace and joy and gladness is the sincere wish of  
UNCLE TOM.

DEAR NEPHEWS AND NIECES,—The prizes for the last six months of 1886 are awarded in the following manner for best puzzles: First, Edward A. Fairbrother, Copenhagen, Ont.; 2nd, Ada Armand, Pakenham, Ont.; 3rd, Louisa F. Redmond (who will please send her address); and 4th, E. Manning, Bond Head, Ont. For best and most answers to puzzles: First, Drucilla A. Fairbrother, Copenhagen, Ont.; 2nd, Emma Dennee, Bath, Ont.; 3rd, Robt. J. Risk, Chesterfield, Ont.; and 4th, Mary Morrison, Mt. Elgin, Ont. The competition has been quite close between some of you, but I am not at all satisfied with the number. Now, I want all the children who read this to try and win a prize in 1887; I will offer \$15 in money, to be divided as follows: For the best original puzzles I will offer five prizes of \$3, \$2, \$2.50, \$1 and 50 cents, and for the most correct answers to puzzles I will offer six prizes of \$2, \$1.50, \$1, 75 cents, 50 cents and 25 cents. This, you must remember, is for the whole year, and now I hope such attractive prizes will induce each one of you to start in real earnest, both in making up puzzles as well as solving them. We will keep to the old rules, but for the benefit of new members I shall reprint them. The puzzles must be wholly original; answer to accompany each puzzle; address in full with each communication. All letters must be sent in by the 25th of each month to insure publication; but credit will be given to those who live at too great a distance for their letters to reach us by that date. Letters and puzzles must be written neatly and legibly.  
UNCLE TOM.

Puzzles.

1—ILLUSTRATED REBUS.



2—DROP-VOWEL PUZZLE.

Th. s-m- l-ttl-n-ss -f s-l wh-ch m-k-s - m-n  
d-sp-s-h-s -nf-r-rs -nd tr-mp-l -nth-m m-k-s-h-m  
-bs-q-...s t- s-p-r-rs.

HENRY REEVE.

3—NUMERICAL ENIGMA.

My 9, 10, 11, 12 means to repose.  
My 1, 2, 8, 13 is a prophet.  
My 4, 3, 16, 20, 7 is fast.  
My 19, 5, 23, 20 means reward.  
My 21, 22, 14, 6, 25 is an injury.  
My 18, 10, 15, 24 means to relate.

A. T. REEVE.

4—TRANSPOSITION.

Het rutfis fo ertu disnow rac omsety dan  
millhutyi a ainv ro roudp nam si ni a ospivite  
seen na gioranta mna.

A. T. REEVE.

5—TRANSPOSITION.

Het smto citnenon seppluase rea het etteesws  
eht smto bisnele hte tosm ficutgfhni nad smto  
taguils.

HENRY REEVE.

6—ANAGRAM.

Come, friends, and fellow puzzlers,  
And join our happy throng;  
We want bright, active workers  
To help “Uncle Tom” along.

Please to work out some solutions;  
Write them with ink and pen;  
Send some witty contributions,  
That could puzzle most men.

“FAIR BROTHER.”

7—CHARADE.

TOTAL sisters, brothers, TOTAL,  
Puzzlers all are welcome here;  
With charades, crosswords numerical,  
FINAL and move in puzzle-sphere.

Each month appear, the time not ruceing,  
Nor satisfied with but PRIME doing;  
We right good will extend to all,  
TOTAL, sisters, brothers, TOTAL.

FAIR BROTHER.

8—ANAGRAM.

“De chillen of dese times,” says Aunty Poll,  
“Ob courage hab not a sup,  
If dey doan' get tings right de very first go,  
Why den dey gibb it up.”

And Uncle Tom's letters she then does read,  
And her glasses carefully wipes,  
Saying, “do as yo' uncle tells you, now,  
And chillen, allus ‘stripes.’”

ADA ARMAND.

9—CHARADE.

The good old folks of long ago had many a say-  
ing true,  
The ignorant placed considerable faith in super-  
stitions, too,

Who wished for my all, who'er he might be,  
Or no matter how heavy his load,  
If a red-haired person he chanced to see  
He must turn right back on his road.  
Another symbol that meant the same  
Of iron was made I ween,  
Nor is there a little farmer maid  
Who has not some of them seen.

To any longer you detain,  
I really have no call,  
The answer's what I heartily wish  
My cousins one and all.

ADA ARMAND.

DIAGRAM.

10—CROSS.

- \*\*\* 1—A life-time.
- \*\*\* 2—To wander.
- \*\*\* 3—A fowl.
- \*\*\*\*\* 4—To generate.
- \*\*\*\*\* 5—Fragrance.
- \*\*\*\*\* 6—Melted.
- \*\*\* 7—An animal.
- \*\*\* 8—To inhabit.
- \*\*\* 9—The goddess of mischief.
- \*\*\* 10—A number.
- \*\*\* 11—A spherical body.
- \*\*\* 12—The close.

My centrals is the name of a very large ship  
that we have often heard of. FAIR BROTHER.

Answers to December Puzzles.

- 1—Keep virtue's simple path before your eyes,  
Nor think from evil good can ever rise.
- 2—Mite, emit, item, time.
- 3—Prelate, relate, elate, late, ate.
- 4—Heap on more wood, the wind is chill,  
But let it whistle as it will,  
We'll keep our Christmas merry still.  
Each age has deemed the new-born year  
The fittest time for staple cheer.  
And well our Christian sires of old  
Loved when the year its course has rolled,  
And brought blythe the Christmas back again,  
With all the hospitable train.  
—[WALTER SCOTT.]
- 5—Nightingale.
- 6—March, arch, charm, harm, mar.

- 7—Be kind, little children,  
To those who are poor,  
And ne'er against sorrow  
And want shut the door.
- 8—Small service is true service, while it lasts,  
Of friends however humblescorn not one;  
The daisy, by the shadow that it casts,  
Protects the lingering dew drop from the sun.
- 9—  
BENEFIT  
ELICIT  
NICHE  
ECHO  
FIE  
IT  
T
- 10—Moderation is the wise man's treasure.

**Names of those who have sent Correct Answers to December Puzzles.**

E. L. Cote, Anite Cote, Emma Dennee, Henry Reeve, Mary Morrison, Drusilla A. Fairbrother, Robt. Wilson, Ada Armand, Arthur H. Mabee, E. Manning, Chas. E. Smith, A. T. Reeve, Robt. J. Risk.

**Commercial.**

THE FARMER'S ADVOCATE OFFICE.  
London, Ont., Jan. 1, 1887.

December, 1886, has been on the whole a very pleasant month, and trade and business may be said to be as good as can be expected. The movement of produce throughout the country has been moderate and prices of wheat are a little better, and give the hope that we have seen the worst and may look for some improvement at least.

**WHEAT.**

This important factor in the world's commerce seems to have taken on a little more life, but whether it is anything permanent time will have to decide. A leading commercial paper says:—"While it is possible that further depression in wheat may occur, the chances are now that a reaction to higher prices may be expected in the near future. The general situation, in this country and abroad, justifies much higher prices for wheat than are now current."

**WHEAT IN SIGHT.**

The total quantity of wheat in sight on this continent and afloat to Europe is 83,460,000 bushels, an increase of 2,972,000 bushels compared with a week ago, an increase of 3,721,000 bushels compared with two weeks ago, an increase of 4,048,000 with three weeks ago, an increase of 3,298,000 with four weeks ago, and an increase of 9,352,000 with a year ago.

The following table shows the total quantity of wheat in sight according to the Chicago and New York statements of the visible supply, and the amount afloat to Europe:

|               | Chicago.   | Bushels. |
|---------------|------------|----------|
| Dec. 18, 1886 | 83,460,000 |          |
| Dec. 11, 1886 | 80,488,000 |          |
| Dec. 4, 1886  | 79,739,000 |          |
| Nov. 27, 1886 | 79,412,000 |          |
| Nov. 20, 1886 | 80,162,000 |          |
| Nov. 13, 1886 | 80,945,000 |          |
| Nov. 6, 1886  | 78,279,000 |          |
| Oct. 31, 1886 | 76,194,000 |          |
| Oct. 4, 1886  | 72,020,000 |          |
| Sept. 4, 1886 | 63,085,000 |          |
| Aug. 7, 1886  | 57,272,000 |          |
| July 3, 1886  | 52,978,000 |          |

The visible supply of wheat a year ago was within about half a million bushels of its highest point, reached Jan. 4; it is now probably up to or

near its highest point for this season, being 1,500,000 bushels above the top point last year. The invisible supply is lower than a year ago, if the official estimate of the crop is correct. By the invisible supply is meant the amount still in farmers' hands and stocks outside of the large trading centres.

**DRESSED HOGS.**

The market for dressed hogs has ruled very steady, and markets are firm all round. There is considerable falling off in the receipts of hogs at the great packing centres of the Western States. How long this may continue, or whether only temporary, cannot yet be determined. With the low price of feeding grains, the fattening of hogs should pay fairly well.

**CLOVER SEED.**

There has been no movement in clover seed as yet. Those who have threshed are not willing to take the prices offered, viz., \$4.50 for prime seed. We can see nothing to warrant more being paid at present, and should there be sufficient seed in Canada for the home trade, prices will have to come down to an export basis, which is \$4.25 to \$4.50. Should there not be the seed in the country that is supposed, then the outcome will be that dealers will put up prices to within a fraction of what it would cost to buy seed in the States, in addition to freight and duty.

**CHEESE.**

The market is quiet and little doing. Holders are very firm, and stocks are in very strong hands, and we look for a firm, steady market up to the time when new cheese will again attract the attention of buyers. The only danger is that holders may hold their goods so high as to seriously curtail the consumption, and thereby throw a lot of old cheese on the market just when it should have met with a clear cost for new cheese.

**BUTTER.**

The Montreal Gazette reports that market as follows:

Operations in the butter market to-day were light, and failed to excite much interest, but the market continued firm in tone, and there was no abatement of the confidence with which butter is regarded by holders, whose expression is generally cheerful. There was some enquiry for export, notably for western, and the business done included 750 packages, at 15½c. Local trade was of average volume.

**Live Stock Markets.**

**QUOTATIONS:**

| Buffalo, Dec. 28, 1886   |               |
|--|---------------|
| Extra Beeves—Graded steers weighing 1,300 to 1,450 lbs   | \$4 50 @ 4 90 |
| Choice Beeves—Fine, fat, well-formed steers, weighing 1,300 to 1,400 lbs                             | 4 25 @ 4 50   |
| Good Beeves—Well-fattened steers weighing 1,300 to 1,350 lbs   | 4 00 @ 4 25   |
| Medium Grades—Steers in fine flesh, weighing 1,100 to 1,200 lbs                                      | 3 75 @ 4 00   |
| Light Butchers'—Steers averaging 850 to 1,100 lbs, of fair to good quality                           | 3 00 @ 3 65   |
| Butchers' Stock—Inferior to common steers and heifers, for city slaughter, weighing 900 to 1,000 lbs | 2 50 @ 3 00   |
| Michigan stock cattle, common to choice  | 2 50 @ 3 00   |
| Michigan feeders, fair to choice   | 3 25 @ 3 75   |
| Fat bulls, fair to extra   | 2 00 @ 2 75   |

**PRICES AT FARMERS' WAGONS.**

| Toronto, Dec. 31, 1886.       |             |
|-------------------------------|-------------|
| Wheat, fall, per bushel       | \$0 81 0 82 |
| Wheat, spring, do.            | 0 82 0 84   |
| Wheat, roose, do.             | 0 83 0 84   |
| Wheat, red winter, per bushel | 0 70 0 74   |
| Barley, do.                   | 0 47 0 53½  |
| Oats, do.                     | 0 31 0 32½  |
| Peas, do.                     | 0 52 0 55   |
| Dressed hogs, per 100 lbs.    | 5 50 6 75   |
| Chickens, per pair            | 0 35 0 45   |
| Butter, pound rolls           | 0 20 0 24   |
| Eggs, fresh, per dozen        | 0 22 0 25   |
| Potatoes, per bag             | 80 0 90     |
| Apples, per barrel            | 1 10 2 50   |
| Onions, per bag               | 1 75 0 00   |
| Carrots, do.                  | 0 40 0 50   |
| Turnips, yellow               | 0 30 0 35   |
| Turnips, white                | 0 30 0 40   |
| Cabbage                       | 0 30 0 40   |
| Beets, per bag                | 0 60 0 00   |
| Hay, per ton                  | 9 00 14 0   |
| Straw, "                      | 7 00 10 00  |

**Notices.**

The annual exhibition of the Ontario Poultry Association will be held in the city of London from the 11th to the 14th of January. Judging from the number of entries received, its success is ensured.

Attention is directed to Mr. Jno. D. Pettit's advertisement, which appears in this paper. He having leased his farm for a term of years, his choice herd of Shorthorns will be disposed of at public auction.

**"Bell Organs" at the Colonial.**

PATRONIZED BY ROYALTY.

In musical instruments, certainly Messrs. W. Bell & Co., of Guelph, Ont., have reason to be proud of their success, and it is universally conceded that their display was the most prominent in their line.

H. R. H. the Prince of Wales personally congratulated them on having the most handsome exhibit; the stand itself, a work of art in design and fitting, having been erected at a cost, it is said, of £600. The woodwork is in enamelled white and real gold, handsomely carved, and the drapery is in silk plush and Indian muslin.

The Marquis of Lorne and H. R. H. the Princess Louise, after thoroughly testing the instruments made and exhibited by the different manufacturers, decided to buy one of the *Illuminated Pipe Top "Bell Organ"*. This sale was followed by others to the Right Hon. Sir Robert Bourke, Governor of Madras, India, and Sir Robert Affleck, each of whom purchased one of their large and handsome organs.

The popularity of this instrument is growing more extensively every year in the British Isles and on the Continent, confirming the critical judgment of experts, who have pronounced them superior to all others for purity of tone and pleasing design.

In the Citadel of Quebec a "Bell Organ" graced its drawing rooms for the use of the Marquis and Marchioness of Lansdowne, and in far distant Victoria, B. C., Lady Douglas selected a "Bell Organ" for her use.

Perfection in these instruments has only been attained after years of experience and study; by using the best material, and employing none but skilled and practical workmen, Messrs. Bell & Co. have produced an organ without an equal.

Prominent English organists who have tried them at the Exhibition have been delighted with them, and we observe that *The Invention*, a journal published in London, says:—"The excellence of workmanship and quality of the "Bell Organs" leave only one verdict possible to any expert who cares to personally inspect them, as we have done for ourselves, and we have pleasure in expressing ourselves as greatly pleased with the genuine organ tone brought out in these instruments."

The *Music Trades' Journal* says: "Messrs. Bell & Co. are now doing a very flourishing business, which ought certainly to be much extended as the result of their handsome exhibit at the Colinders, and it is gratifying to note that the judges at the Exhibition have endorsed our opinion as to the excellence of their instruments."

We also understand that Messrs. Bell & Co. have received the Gold Medal at the Liverpool Exhibition, which has just closed.

A correspondent of the *Horticultural Times* (England) writes:

"The test between Canadian apples and English and Scotch apples referred to in your last was thus: The same kinds were selected from each country. For instance, Ribston Pippin, Blenheim Orange and Cox's Orange Pippin were three taken both from Canadian and English and Scotch growth. These were specially chosen, as they are grown in both these countries, and in each case quality and color was greatly in favor of those grown in Canada. The only secret in the matter of quality is in the difference of climate, Canadian being so dry, and an abundance of sunlight gives high color, and quality follows."

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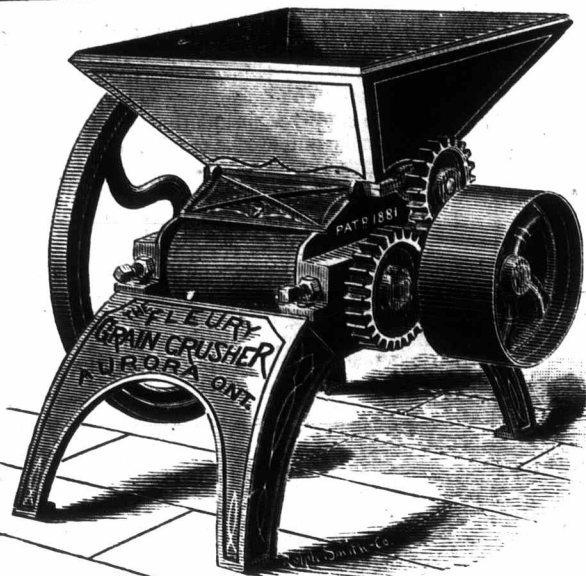
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The 4th Annual Examination  
Will take place in July, 1887.

Farmers' sons wishing to avail themselves of this examination can get circulars giving the course of reading by applying to

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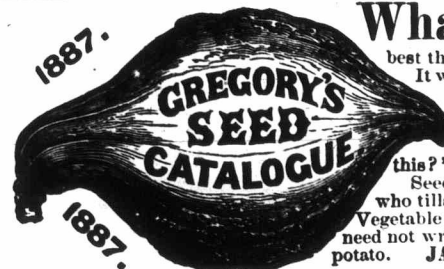
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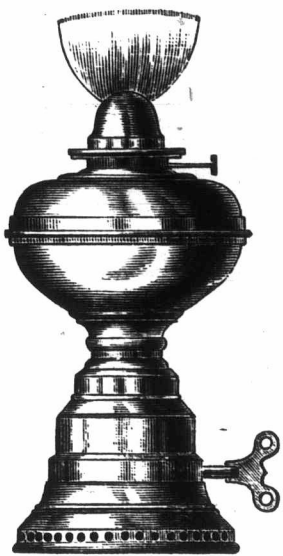


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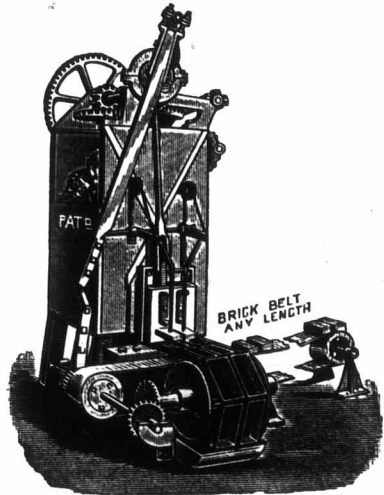
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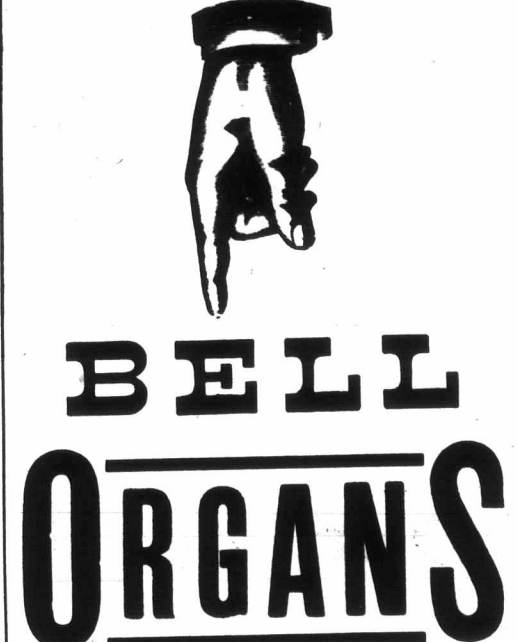
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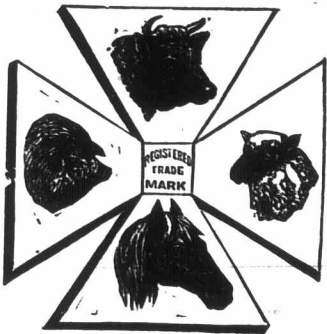
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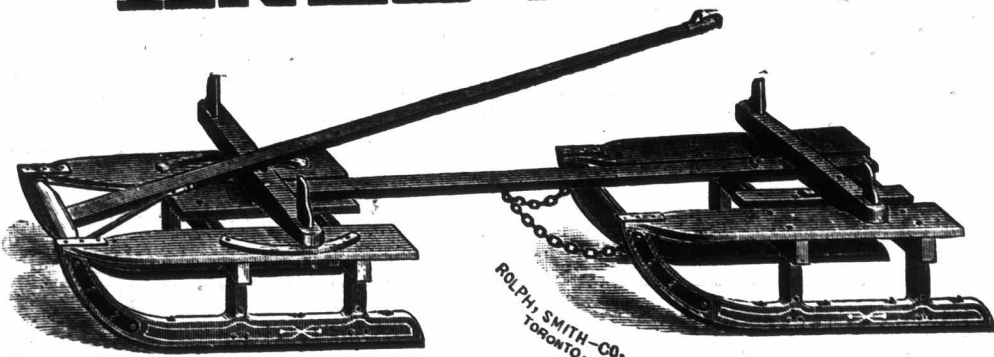
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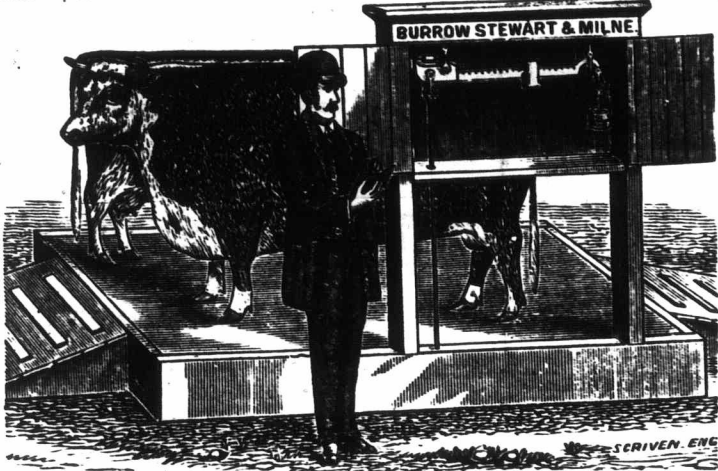
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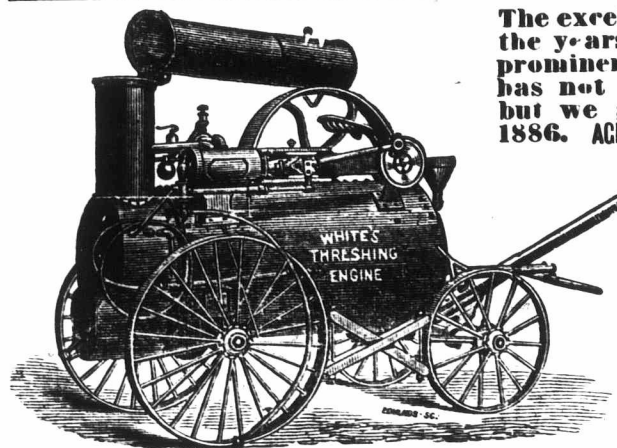
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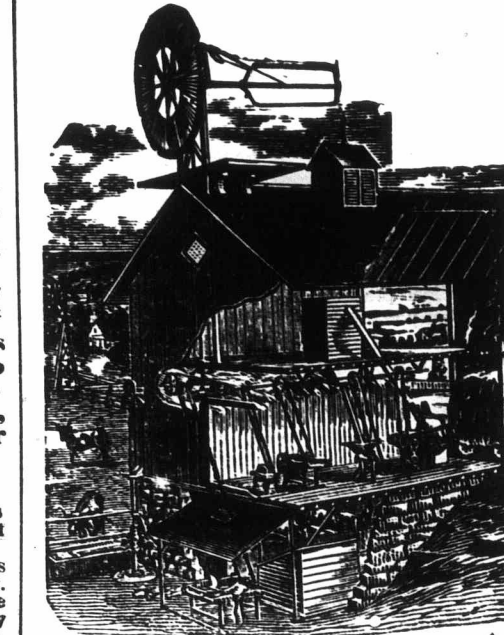
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