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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

VOL. 2. No. 12 — This Journal replaces the former "Journal of Agriculture," is delivered free to all members of Farmers' Clubs. — DECEMBER 15, 1898

..THE..

Journal of Agriculture and Horticulture

THE JOURNAL OF AGRICULTURE AND HORTICULTURE is the official organ of the Council of Agriculture of the Province of Quebec. It is issued Bi-monthly and is designed to include not only in name, but in fact, anything concerned with Agriculture and Stock-Raising, Horticulture &c. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Fust, Editor of the JOURNAL OF AGRICULTURE AND HORTICULTURE, 4 Lincoln Avenue, Montreal. For RATES of advertisements, etc., address the Publishers

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Table of Contents

Notes by the Way.

The Rt. Hon. Robert Gibson, Lord Mayor of Manchester, writes as follows to the Department of Agriculture:

"The samples of *maple-syrup* and *sugar*, as well as the *honey*, arrived in good condition. I showed the syrup and honey to several dealers in such articles, and they seemed pleased with them, promising to communicate about them with their Canadian agents. I shall be delighted if this leads to business, for the more dealings the mother country has with her colonies, the better will it be for the whole world."

Mr. Souturn, commercial agent at Christiania (used to be *Christiana*. Ed.), sends word that the harvest in Norway has turned out badly; in consequence of the failure of the crops grain is being imported, especially wheat, flour, and rolled-oats. No *apples* at all, and Mr. Souturn calls the attention of the Canadian forwarders to the possibility of establishing trade-relations with that country. The favourite apple there is the *Baldwin*. *Dried apples*, too, would find a ready sale in Norway. Boxes of 50 lbs. are the most suitable packages.

Some 250,000 lbs. of *butter* were exported to Japan during the year 1897, by Mr. Robert Scott, of Shoal Lake, Manitoba; but he does not think the Japan market nearly so advantageous as the English market.

(1) Lord Mayors, of whom there are only three in England, viz., London, Manchester, and York, and one in Ireland, Dublin, enjoy the prefix "*Right Honorable*" during their tenure of office. In other cases, it signifies that the bearer is a member of the Privy Council.—ED.

Large consignments of *cattle* from Canada to London and Liverpool pulled the prices down considerably. The exporters must have lost heavily.

From Beauce. Mr. Siméon Bolduc, one of the largest dealers in that district, sent lately *7,000 sheep* to one firm at Boston. Farmers in Beauce find that breeding sheep pays them well.

The *Germans* are on the look out to see if they cannot share in the receipts of our delicious apples.

Professor Robertson gives, in a late report, the following temperatures as being the best suited to the preservation of farm-products :

Butter (for long keeping)	20° F.
Cheese " "	36° "
Soft fruits, such as early apples, pears, peaches, tomatoes, (for long keeping)	36° "
Dressed beef, mutton, fresh pork, poultry.	38° to 34°
Eggs	36° " 34°

In order to derive the greatest benefit on board ship and in storage, the greatest care must be taken in moving the goods from the refrigerating chambers.

During hot weather, the packages must not be opened till after the expiration of 48 hours, i.e., until the goods have acquired the temperature of the surrounding air; if this is neglected, the articles are sure to suffer.

The scent of butter is derived from one of three causes : The fatty matter of butter has a slight odour, which is much more perceptible in the milk of newly calved than of long calved cows. Salt, too, is another factor in the case, but its effects are hardly appreciable. In the third place, cream kept too long gives a bad scent to butter, both taste as well as smell being peculiar. Cream invariably acquires both the odour and the flavor of the vessel and locality in which it has been exposed.

Every effort should be employed to improve our own creamery system, in order to ensure the highest prices on foreign markets to our Canada butter. The intrinsic quality of butter is altered by the process of fermentation. The exclusion of air from its surface is not alone sufficient to ensure its preservation ; for the germs that cause the change and at last ruin it are in the butter and enter upon their work as soon as the temperature favours their incubation.

In butter-making, the makers often add to the cream a sub-tance inducive of fermentation. Fermentative action can be arrested by raising the temperature of the milk to about 155° F. On the other hand, if butter is frozen while fermenting, this will only preserve it as long as it is kept at that temperature ; so, if it has to be kept for more than a month, it should be placed in an icehouse the temperature of which is 20° F.

Docking colts.—At a meeting of the R. A. Soc. of England, Sir Nigel Kingscote moved a resolution that, "at and after Maidstone Meeting of the Society in 1899, no *foals* with docked tails be allow to be shown at the Society's country meetings ; and that at and after the country meeting of 1900, no yearlings with docked tails, and at and after 1901 no two-year-olds with docked tails, be admitted. In his opinion, the best show (1898) of horses ever seen at a Royal Exhibition had been utterly spoilt by the extent to which docking had been carried. They would remember that in November 1892, a similar resolution to that which he now moved was brought before the Council by the Duke of Westminster, seconded by himself. He regretted, and had ever since regretted, that the motion was rejected. The evil and cruelty of docking had become worse since that time. He could only reiterate what he then stated, and what was still his own opinion, that the cruelty was not only in the operation (an operation which, at any age of the animal, should always be performed by a duly-qualified veterinary surgeon, not by ignorant grooms and blacksmiths), but in an intensified degree when the poor docked animal was turned out into the fields, whether as a brood mare, or in any other condition. The hair might grow on the stump, but it fell listlessly down, and could not be used to switch off flies and insects. Surely this great and leading Society should no longer lend itself to the cruel and disfiguring fashion of docking. The Hunters Improvement Society had led the way, for it passed, in May 1897, a resolution that at its 1899 Show all foals should be exhibited undocked, and it was proposed to extend that prohibition to yearlings and two-year-olds. In America and Canada docking was not tolerated. He had heard it said that his motion would have the effect of stopping the docking of horses alto-

gether. This was not the case. His motion did interfere at all with the liberty of the subject. Owners might dock their horses as much as they pleased."

Personally, we agree entirely with Sir Nigel Kingscote's views, but as regards his statement that, "in Canada, docking is not tolerated," we must be allowed to contradict it positively. In 1896 (?) we read an article from the pen of, if we remember, Dr. Fleming, a leading veterinary surgeon of London, containing the same statement. We sallied at once into Sherbrooke street, in this city, at about the favourite hour for driving, and, counting the carriage-horses carefully, we found that, out twenty-two pairs and five singles, there was only one horse that had not been docked! Equally, on the receipt of the last Gloucestershire Chronicle, we took the census of the horses in the same parade—November 29th—and, except one pair that were evidently from the country, every horse was docked!

One of our greatest friends, a breeder of many colts, docks all his foals at an early age, and how they stand the flies in summer on his sandy land we never could understand. Docking is bad enough, in its æsthetic effects, but plucking the hair from the stump afterwards is absolutely deforming to the horse, and this is too common a practice here in Montreal.

Cost of a loaf of bread.—Some years ago, we published in this journal a calculation of the cost of making a barrel of flour into bread. The bakers were not pleased with us, and one of them, if we remember, called us names the reverse of complimentary. However, we did not care much, and now we have the pleasure of placing before our readers a fuller calculation, made by a baker in full practice, that comes out, within a couple of pounds in perfect correspondence with our own figures.

THE DAY'S WORK.

WHAT IT COSTS TO MAKE A LOAF OF BREAD.

Facts and figures of great interest to householders.

It is always interesting and instructive to learn the prime cost of things in general use, and to no single article of consumption does this apply so much as to the cost of bread; yet, strange to say, even bakers themselves have hitherto been very doubtful upon this subject, and it was almost impossible to find two opinions which approached each other in important particulars. This uncertainty, however, has now been removed by the "Canadian Baker and Confectioner," by the process of a prize competition among the bakers, and the results are published in the October number. The questions which the competitors were required to answer were as follows:

1. What can you produce one thousand two pound single loaves of bread for, ready to deliver? Give the items that go to make up the actual cost in detail, under the heads of material, labor, and general expenses. Flour, $5.00 per barrel.

2. What will the distribution of the thousand loaves cost at retail, in labor, plant, collecting, etc., on the average of a loaf to a house.

Thirteen bakers competed, from the following different localities:—Toronto, three; Ottawa, Hamilton, St. Catharines, Mount Forest, Hagersville, Peterboro, Carberry, Man.; Tilsonburg, Morrisburg and Richmond Hill. It is worthy of note that ten out of the thirteen estimates were within four dollars of each other, varying from $42.35 to $46.87—only two going below $40.00, and two being above the $50.00 mark for manufacturing. In the matter of delivery, there was greater diversity than in the estimates for the manufacture of the bread. One was as low as $3.80, and one was as high as $16.60. In deciding the competitions along this line, after a careful perusal of the whole of them, the judges, who were some of the best men that could be found for the purpose, decided that under the half-cent a loaf and over the one cent a loaf would be counted out, as unwarranted by the general evidence before them as to cost in this department.

All the estimates but two were for hand work, and it is a remarkable fact that the two which were put in by large establishments using machinery were much in excess of the others, both as to production and delivery. In fact, in regard to manufacture, they averaged $8.02 more than the others, and in delivery, $7.72, or over double the average cost of delivery by the other eleven competitors. It may be said, in passing, that as this result is the reverse of that arrived at in all other lines of manufacture, it is worthy of some further economic study.

The average cost of the thousand loaves, taking all the competitions into consideration, is $44.88, and the delivery $8.50, or a total cost of $53.38. The eleven papers representing ordinary baking

concerns average $43.64 for cost of production, and $7.31 for cost of delivery per thousand loaves, or a total of $50.95.

Three prizes were given, the total estimated cost of the first successful competitor being $52.96; the second, $52.04, and the third, $50.84. As these estimates are well worth the study of consumers and the trade alike, we reproduce the one that won the first prize, as follows :—

COST OF PRODUCING 1,000 TWO POUND LOAVES OF BREAD.

J. D. Wright, Hamilton, Ont.

7½ bbls. of flour, at $5.00	$37 50
1½ lb of yeast, at 30c	45
225 lbs. of coal, at $4.50 per ton	50
20 lbs. of salt	10
Rent of bake shop, including water rates, at $5 00 per month, for one day	18
Gas for lighting	5
Wages, etc., two men and a boy, at $12, $10 and $3 per week, for one day's work	4 17
Wear of things and extras	15
Total cost of manufacture	43 10
Cost of delivering one thousand loaves in one day—15 hours' work :	
4 drivers, at a salary of $9 per week	6 00
4 horses, with 4 quarts of oats per meal each, oats at 30c per bush	48
13 lbs. of hay each per day, at $6.00 per ton	17
Shoeing, straw for bedding, wear of harness, waggons, etc	60
Rent of barn, at $3 per month, one day	10
For small extras allow	15
Total cost of delivering	$7 50
Collector and bookkeeper at $7 per week, one day	1 16
Expenses of billheads and books	10
500 loaves at 11½	$57.50
Allow two per cent for bad debts	1 15
Summary—	
Manufacturing	$43 10
Delivering	7 50
Collector	1 16
Stationery	10
Bad debts	1 15
Total cost	$52 95

The examiners found that the rate of seven and a half barrel of flour to the thousand two-pound loaves was borne out by the majority of the estimates, so that this establishes a rate of 66⅔ loaves of four-pound bread to the barrel ; and it may be taken that the average cost of producing 1,000 two-pound loaves, in ordinary baking establishments, when flour is $5.00 a barrel, is $51, or about five cents per loaf.

For the special benefit of the consumer, however, in considering the present profit of the baker, it is to be borne in mind, that the cost of flour would now be only about $4.25 per barrel, a difference of 75 cents in the barrel, and about $5.60 in the cost of material for the thousand two-pound loaves, which brings the total cost down to $45.40, or about 4½ cents per loaf. As the general retail price of the two-pound loaf in Montreal continues at eight cents, in spite of the reduction in flour, it will be seen that the present clear profit of the baker, according to the above calculations, by one of the most expert bakers in the country, is the enormous one of 77¾ per cent. Even if the above profit is a just one where credit is given, surely six cents ought to be enough for the cash customer to pay, as this charge shows a profit of exactly 33⅓ per cent. It will be noted that the successful competitor, a Hamilton baker, charges out 500 four-pound loaves at 11½ cents, when the flour costs $5.00 a barrel, a very different sum to the Montreal price of 16 cents now that the flour costs only $4.25 a barrel. At St. Thomas, Ont., the present price of the four-pound loaf is ten cents, and at Simcoe, nine and a half cents.

The Dairy-School, at St. Hyacinthe, is now in full swing ; lectures, by MM. Chapais, G. Henry, Leclair, Castel, and others, are delivered to crowded audiences, composed of managers of creameries and cheeseries, candidates for inspectorships, and former students who desire to refresh their memories. The programme comprises three principal parts :

1st. Teaching of the best methods of
Milk production, both in winter and summer;
Butter-making and cheese-making ;
And milk testing.

2nd. Preparation of inspectors for syndicates of butter and cheese-factories, organized or to be organized.

3o. Experimental test of the new types of machinery and apparatus for dairies and of the new methods of manufacting dairy products, and investigation on progress to be made in dairying.

We have received a copy of a text-book on "Agriculture, for use in schools," compiled by Mr. Charles C. James, M.D., Deputy Minister of Agriculture for the Province of Ontario. Mr. James was formerly Professor of Chemistry at the Agricultural College at Guelph, and there can, on tha

account, be no doubt as to his thorough acquaintance with the theoretical branches of his subject; but a careful perusal of the work before us convinces us that his manner of explaining the "reason why" must be of the greatest use to all students of the *Science* of Agriculture. His chapter X, on "Improving the soil," especially the passage on "Bare-fallows" (p. 43) is very clear and concise:

"*Fallowing the soil.*—In former years, before the great prairies were open to settlers, the farmers of Ontario and the Eastern States grew wheat as their principal market crop. Its price in many years was more than one dollar a bushel. The usual practice was to prepare the land for fall wheat by a *bare fallow*. The soil was allowod to lie idle (1) or unproductive for the whole or the greater part of the season preceding the sowing. It was plowed from time to time and harrowed. What benefit did that tilling bring? The rains fell and washed down a little material out of the air. This will be seen if you contrast rain water with clear spring water—the former has been changed, something has been taken out of it by the soil, and something else given to it by the soil. The soil is benefited by rain water passing through it. Then some ammonia might get into the soil from the air. Nothing of a solid mineral nature, however, such as potash, or soda, or lime, or phosphates could get into the soil from the air, simply because they are not found in the air. But one thing could be done and that was done, namely, the air could get into and through the soil and help weather it and work it over into food available for plant form. Bare fallow, then, does not increase the material of the soil, it merely works over what is in the soil for feeding the plant; it can not and does not prevent the soil from becoming worked out. Furthermore, there is the loss of one season's crop, and if the soil can be kept in good condition and a crop grown at the same time, all will admit that the latter should be done. In bare fallowing, however, the soil is more or less cleared from weeds when the fallowing is thoroughly done. But weeds can be cleared out by other means than the bare fallow. First of all a cultivated crop can be grown, such as corn or roots—the constant cultivating required during early growth will clear out the weeds. Or a crop can be put in that grows quickly and that covers the ground well, such as clover, buckwheat, etc. This smothers or checks the young weeds, and the green growth can be plowed under to decay and form humus. This practice is called *green-manuring*. In green-manuring there is less water lost by drainage than in bare fallowing and hence less loss of soluble plant food. In addition everything that the plant takes from the air is turned into the soil and the amount of *humus* is thereby increased. This latter result is very beneficial in loosening up heavy soils and in making light sandy soils more loamy."

The practice of *green-manuring* we of course cannot recommend, for the reasons that we have stated in this periodical, that food is not so plentiful here in winter that we can afford to bury it in the soil.

(1) Hardly, idle; for it was being worked pretty hard. Ed

Hunting.—So the farmers of the County of Cork object to fox-hunting, do they? A short-sighted objection indeed, for the prices of oats, beans, and hay are always at least 25 per cent higher in hunting countries than in countries where no hounds are kept. A fox now and then kills a hen or two, but the M. F. H. is always ready to pay for such losses, and this reminds us of an old Leicestershire tale of the forties:

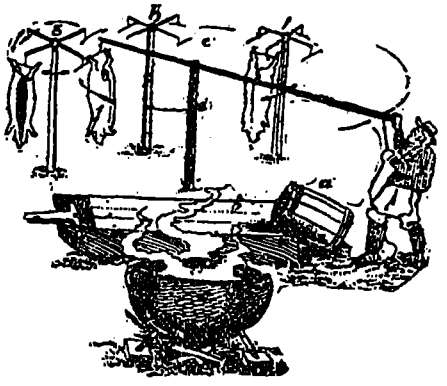
A farmer's wife came to the late Ralph Errington, then Master of the Quorn, and with a pitiful air showed him the heads of fifteen turkeys that, she said, the fox had killed the night before! "Ah," said Errington;" go and fetch the carcases, and I will pay you market-price for them; the fox surely cannot have eaten all the bodies and left the heads!" Imagine the woman's disgust; she thought that the Master being a Londoner was simple enough to be taken in by her absurd statement: *pas si bête.*

AIDS IN BUTCHERING

Between now and Christmas time the much dreaded task of butchering hogs will have to be accomplished. It has many disagreeable features, but some of these, particularly the lifting of the hogs before and after dressing, can be robbed of many of their objections by having a convenient arrangement for scalding, scraping, cleaning and hanging. One arrangement for lightening labor in this way is shown in the accompanying illustration. The farm sled can be used as the scraping platform *b*. The scalding vat *a* may be any

large barrel which will hold water. Securely block and brace it so that it will not be displaced in putting the hog in and taking it out. In the iron kettle, *c*, the water is heated. The hog is killed and drawn along the side of the scraping platform opposite the iron kettle. Instead of lifting the carcass onto the platform by hand, make use of the pivotal lever attached to the post *d*. Place a chain about the hind legs of the hog, hook the short end of the lever into this chain and the hog is lifted easily. The post *d* is equally distant from the platform *b* and posts *g*, *b* and *f*.

After the hogs have been scalded and all the hair removed, put in the gambrels and with the lever lift them from the scraping platform and swing them around so they can be hung upon the crossbars in posts *g*, *b and f*. A lot of heavy lifting is thus avoided. The crossbars can be made so that they will turn around on a pivot in the direction of the arrows. This is accomplished by boring a 1½ inch hole in the top of the post. Use for



crossbars 4 by 4 oak properly narrowed at the outer ends. Cross these on top of the posts, bore a 1½ inch hole in the middle of the intersection and secure them in place by means of an iron pin which just fits into the 1½ inch in the crosspieces and the post. Fasten the cross arms together and a first class, cheap pivotal arrangement for hanging hogs is the result. With this device and the lever there is absolutely no necessity for heavy lifting. If one does not care to go to the trouble of arranging the cross arms so that they will turn they can be securely fastened to the top of the post or better still, mortises made near the top and the crosspieces fitted into them.—*New England Homestead.*

Effect of Tuberculin.—Opinions still differ as to whether the tuberculin test has an injurious effect upon a healthy cow. Many unprejudiced and careful veterinarians and scientists maintain that where it is properly employed, the effect is not injurious : on the other hand, the complaint is still made among Massachusetts farmers that their herds which have been tested with tuberculin during the past two or three years have in some cases "gone to pieces," meaning thereby a general breaking down of health and milking power. This complaint is loudest among those who have expressed the greatest prejudice against the test, and it may also be partly due to the use of a foul syringe and improper methods. It is admitted on all sides, however, that quite a number of the cows in a given herd which do not react to the test now are pretty certain to do so six months or a year hence. Of course there is no means of knowing whether in such cases the test favored the development of the disease, or whether the cows would have become infected if they had not been tested. The extreme claims formerly made for tuberculin are no longer ulttered by sensible men among either the profession or the laity, who are all agreed as to the far larger importance of proper care or cattle, with plenty of good air, pure water and every reasonable sanitary precaution against disease.—*New England Homestead.*

Preventing Hog Cholera.—The farmers who do the most doctoring usually have the most trouble. Cleanliness, pure water, clean troughs and clean beds will do much to prevent disease. Feed plenty of charcoal, salt, ashes and some lime. Occasionally saturate some old rags with kerosene and carbolic acid and burn in the pig pens and house. Sulphur burned in the same way will do much to purify hog quarters.—(J. W. Walford).

Pure Milk can be obtained only from healthy cows fed on good wholesome food and supplied with pure water. Damaged feed, such as rotten silage, moldy hay, or musty grain, will give the milk or its products a disagreeable taste.

American Butter in Southern Africa. — It appears that some 4000 boxes (56 lbs each) butter from America have been received at Cape Town from London. This butter was shipped as Australian, all the American marks on the boxes having been erased and Australian marks substituted. While American producers have not secured the credit of turning out these fine goods,

the action is at least evidence that American butter is now satisfactory, although consular reports indicate much of it is too high in color. We are shipping some butter direct to South Africa. The demand there for American butter is from July to October, when the Australian and Denmark makes are not on the market.

The Horse.

CARE AND MANAGEMENT OF FARM HORSES.

"The stable and general management of farm horses" is a subject which has been very largely written upon, and upon which a vast number of theories have been set forth. Nevertheless the great majority of horse owners seem to think little or nothing about the matter, and if the horse has a roof to cover him enough or even half enough to eat and drink, and is kept half clean they think they have done all a faithful and willing servant has any right to expect. When we reflect on the vast number of farm stables where no attention is paid to ventilation, no attempt made at drainage, and which are only cleaned out when manure is required, or the ammonia has become too strong for anyone to stand no matter how badly in need of a stimulant, even for the few minutes spent in feeding, watering and cleaning; and remember the horse has to exist, at least during the winter months, in this atmosphere for from 10 to 12 hours every night, it remains a wonder horses live and remain healthy as long as they do.

With many farmers, not horse breeders or fanciers, their horse stock is of little consideration, and horses are looked upon as mere slaves. It will scarcely be believed, but I knew one case of a farmer who used to harness his horses to do the spring work and take the harness off when the seed was all harrowed in! Those horses must have had a sorry time in a wet spring.

On the other hand I have only to mention the names of Mr. Henderson of Sault-au-Recollet, Messrs. Penniston of Lachine, Mr. Ness of Howick, and, if I had time to think, many more, who are more fitted to give points on the care of horses than receive them.

One great disadvantage the poor horse suffers under is that he is not the direct means of bringing in money, and while the farmer looks after his cattle, sheep, pigs, himself, the horses are left to the care of the farm servants.

I may here remark that while there are many smart, industrious and faithful farm hands, there are also many who think of nothing but getting through their work in a slovenly halfhearted and hurried way; getting as big a supper as they can possibly stow away, then putting on their best clothes, too often over the top of their dirty ones, and getting away to see their best girl. Pity the sorrows of a poor old man, but rather pity the sorrows of a poor horse left to the care of such men as these.

In a great many farm stables, there is no such thing as rules or time. The farm hand comes out to the stable in the morning, without any idea of what he is going to do first. He probably begins by what he calls 'mucking out' the stable, sweeping out about one foot into the stalls. All the rest of the bedding mixed with manure is swept up (which is much easier) under the manger, there to remain all day and give a delightful smell and flavor of ammonia to the hay in the manger above.

Having cleaned out the stable, to his own satisfaction, he waters the horses. If he has not too far to carry it, and the horses are not too thirsty, and he has not been out too late the night before, they probably get enough; if otherwise, "There's oh! what a difference in the morning." Next, oats are fed; this is one of the nicest of a lazy man's job: I confess to being very fond of it myself. Our man feeds indiscriminately; every horse gets the same measure, full, fat or lean, from 14 to 17 hands, all fare the same.

Next, the hay is thrown to them; this of course is a little more like work, and the horses probably do not fare so well as in the matter of oats.

Then, comes cleaning; this of course is often dispensed with altogether, when performed it consists in a good scrape with a long toothed curry comb and a rub-down with an old cloth or wisp of straw, the average man having the strongest aversion to any sort of brush.

After having found all these faults with average farm hands, I must now in justice say a few words about the disadvantages under which they work, and first on cleaning out the stable:—anyone with any practical experience, actual work, not looking on—knows how hard it is to get into all the corners when the floor is getting worn out.

Next feeding hay: for my own part I believe in feeding hay off the ground; but if this is objected to, by all means use and iron racks, in which dust and hayseeds cannot accumulate.

The old wooden mangers, close at the bottom, are a perfect nuisance, and few men can be got to clean them out. Then, wooden feed-boxes, if used for mash, always get sour.

Coming to the care of harness, of course we cannot expect it to be done up with Harris's harness composition, but it ought to be kept clean and soft by means of hot water, soap, and some dressing—castor oil and lamp-black being I think as good as any. But more important is the putting on of the harness; especially of the collar, which of course it is needless to say must fit the horse; but what is the use of a good fitting collar if a mane three feet long is to be left on the off or near shoulder as the case may be with no attempt made to pull it from beneath the collar! Sore shoulders are the sure result, and many a farm hand has wondered that was the cause of them.

Another thing, which should not be forgotten, is to scrape out the dried sweat from the lining of the collar, and to sponge it clean, or the lining will soon get hard and lumpy: another cause of galled shoulders

I might here remark that galled shoulders might in most cases be prevented if horses were hitched up for say, an hour a day a month before spring work begins; thus getting their shoulders hardened. As it is in many cases, horses, which have fed on soft feed and done no work all the winter, are expected to go out the first day the land will carry them in the spring and draw the harrows for 9 or 10 hours over a fall furrow. Anyone who has ever walked behind the harrows knows this is no holiday.

Another great mistake, as I think, is leaving working horses out at pasture at night too late in the fall. I have known horses, working hard all day at fall-plowing, given a feed of oats, then turned out on after-grass eaten down by cows, on which they could find nothing but hoarfrost! Would it not be better to have them in the stable even with nothing better than straw to eat? I think it really pitiful on a cold morning at the end of October, or at the beginning of November, to see six or eight heads hanging over the gate nearest home, and each trying who can get furthest over with an intense longing for stable and oats, even if work must follow. To come to my own ideas as to the care of farm horses, I do not believe in coddling them too much. Some men think a horse cannot live without the very best quality of oats and clean timothy hay. The very sight of a head of clover would frighten them. For my part I have never considered clover as rank poison; in fact, I think if cut early enough and well saved it is a very good hay, quite as good for horses doing slow work as timothy, if not good enough for race horses. (1)

Beginning with winter, I think a feed of oats morning and noon, and a feed of boiled barley with moulé or bran at night, and two or three feeds of hay—some feed only morning and night, but I think it better to divide the same quantity into three feeds. I will not enter into the old rule of thumb quotations of weights and measures; this must be left to the judgment of the man feeding who should know the requirements of each individual horse. I should say from 10 to 12 quarts of oats or their equivalent in barley, and from 10 to 15 pounds of hay, a fair allowance.

Horses should be kept exercised two or three times a week, at the least, in harness. What good does it do to turn a horse out in the yard and have him stand at the stable-door and ask you to let him in? Yet we often see this done. When the spring work commences, horses treated in this manner will not be likely to lose much in condition.

In summer—haying and harvest—I think hay and a feed of oats at noon are sufficient; of course, as a rule, they are then at grass at night.

The feeding during the fall work should be the same as in spring, and I again protest against leaving them out at night too late in the season. I have not mentioned carrots or turnips as feed, as I am a firm believer in the old saying, that a horse should eat nothing which grows beneath the ground, and that roots should be left for cattle and sheep. However, I think a few carrots are often useful in case of sickness, where a horse is off his feed and requires tempting. (2)

With regard to medicines in the stable, I think

(1) We need not tell Mr. Wardle that in London, clover-hay which, there, is never given to any stock but horses, fetches about five dollars a *load* (2016 lbs) more than the best meadow hay. But then, in England, clover is always "cut early and well saved," barring bad weather. Ed.

(2) And we must not forget that carrots act on horses as a powerful diuretic. Ed.

a few drenches for colic, or tympanitis, a cough mixture and a lotion for wounds and galls, are about all that is required. As a Vet., of course, I am naturally averse to people treating their own horses; but these remedies should be on hand in case of emergency.

WALTER WARDLE.

The Flock

ENGLISH SHEEP FARMING OF THE FUTURE.

It is somewhat odd that the animal selected in modern times to be the typical representative of the English nation should be a bull—John Bull,—for it is indisputable that the sheep has played, and he is likely again to play, a far more conspicuous part in England's history than he has.

The throwing out of cultivation of large tracts of land—to form big sheep runs—can be shown to have brought about more than one permanent change in the government of England, and the self-same practice has accompanied, if it has not caused, similar fundamental changes in Scotland as well. In plain truth, that extraordinary mildness and docility which people suppose themselves to see in individual sheep is the very opposite to the characteristics which have been shown to have been in its action upon human affairs: namely by the presence among men of the genus Ovis.

Since Abraham and Lot had, unwillingly, to part company because their flocks could not dwell together, the land not being able to bear them, some of the bitterest, if not the most incurable, of divisions amongst tribes have arisen out of quarrels about sheep rights and sheep wants. But then what returns for services rendered to him the sheep has made to human society, especially to English and Canadian society. Blankets and carpets render the winters of this country comfortable; whilst English equity sits—sleeps occasionally some irreverent people say—on the woolsack! And the presence of English respectability has never yet been generally recognized, except when it appears under the covering of a black cloth coat.

All of which considerations are not so far fetched as they may see at first sight to be. The present as well as the past history of English agriculture is inextricably involved in the history of its flocks.

Whatever plans one may be making for the agriculture of the future, we must grapple with question "How about hoggets." For without sheep there seems to be at present in England small hopes of rent, small chance of profit to the occupier of the land, and very poor security for any permanent fund to meet workman's wages.

And the public at large is in such a hurry to dine off home grown mutton that it is with difficulty that sheep can now be kept alive till they have seen the twelve months round. It is sheep! sheep! sheep!!! that we must din into the ears of the whole class of occupiers of the land; whilst in the manufacturing towns of the North of England, there is no cry which is so readily responded to as wool! wool!! wool!!!

Yet, simultananeously with this state of affairs, one has to notice in the Old Country a distinct tendency to diminish the size of holdings. The big farms are still wanting tenants whilst the small ones have begun to let pretty freely. There are many intricate social causes at work to produce this very great change in the position within twenty years time. But we may leave these all unconsidered here, because, whether the small farmers are to succeed where the large ones went down will depend in a very great measure upon how the flocks on the small farms are going to be managed. If a flock has to be managed by hired labour, it must be of considerable size, so as to make it worth while to engage the exclusive time of one competent shepherd. If David could managed successfully a *few* sheep in the wilderness it is a good deal more than the average tenant farmer in England can now do on his hired land; for it is a fact that sheep cannot long be made to thrive without almost hourly watching, a considerable range, and frequent changes; and these are hard to come by, on a small holding. It would seem to follow that, except when a farmer is his own shepherd, and takes into his own day's work, the seeing after a score or so of ewes—them, their feet, the flies, and their produce—that even the great advance in the price of mutton and wool cannot make sheep permanently profitable; for the losses which arise from any mismanagement of a flock are prompt and heavy, and the expense of an expert, if there be only a few sheep on a farm, will prove to be a very heavy charge upon them per head.

The time will come, when, as was the case in village communities in the Tudor days, there will be village flocks ; viz : sheep belonging to several owners, fed, in turn, in each one's land in an arranged proportion, and in an agreed sequence ; and all of which will be entrusted throughout a set time to one shepherd, who will either be part owner, or will occupy the same position to those who do own, as the *bower* who hires a dairy of cows does to the men whose property the cows are. There seems thus to be quite a possibility of men becoming so skilful in the management of a flock in all its stages of produce viz : as ewes, fat lambs, store lambs, and store sheep, and fat sheep and fleeces, that they will be much sought after, and come to hold to the actual cultivators of land, the position of partners rather than servants ; and this condition will give to competent village lads of intelligence and character one new way of rising in the world.

It will of course be necessary, in order for any altered practice to succeed, that the very tone and character of farmers' minds be changed from that which they have hitherto displayed. But does anyone now doubt that this change has become inevitable, and has even now commenced? The farming in the early part of the century which succeeded best, was that when each household consumed as little as possible of what not home grown.

The successful farming of the future seems as if it were going to be the production of specialties. One man will with his neighbours combine, in a district suitable for it, to turn out the very best cheese, or butter, or milk—neighbours joining hand in hand, not only to make, but also to put their wares to advantage on the wholesale markets. Another set of men will be found to combine, under such similar conditions of soil and climate which are favourable, to grow fruit largely, providing themselves with means to conserve what cannot immediately be taken off fresh, and to utilize all bye-products. A third set will assuredly make sheep a specialty—the best mutton or lamb, with the best price for the fleece. Now, combination will be found to be as generally necessary for this improved and increased yield of mutton as for the other sections of produce. A consideraleb range and opportunity of choice of diet is essential to the breeding flocks, and to ensure the early maturity of the produce ; and only early matured sheep will pay well. This cannot be had on small farms, if each occupier stands alone, and it is plain that smaller farms are likely to pay better rents that the larger ones.

The principle of putting out sheep part of the year to keep upon alien farms has always partially obtained on Romney Marsh and in parts of Scotland. It is no new untried practice which I advocate. There seems to be no reason why the plan should not become much more general than it has hitherto been. It will be necessary to find neighbours willing to agree together as to the variety of sheep which is the one best suited to the district ; but this will soon be settled when there will be men of some substance or reputation who will undertake the management of a joint flock.

I do not believe for one moment that this suggestion means any condition of affairs which shall be better than the best of the older systems were, when each of these was in its true prime. But the past can never really recalled ; and all that can be done is to utilize, as new combinations, such principles of antecedent practice as are believed to remain sound.

Flocks which are joint properly have always been common in all parts of the world except in the England of the middle of the nineteenth century. And a plan which has such wide and such long experience in its favour cannot be without vitality. Anyway, it is plain that more sheep are wanted in England, and more sheep of a character which up to this time has never been common *outside* England ; and whilst bearing in mind the wise caution about " not prophesying till you know," I do not see how flocks can be very materially increased except by some method, which will bring to bear upon sheep breeding advantages obtained through combination and co-operation.

W. R. GILBERT.

The Orchard and Garden.

(CONDUCTED BY MR. GEO. MOORE).

WINTER.

Winter is now upon us and while it is a season of rest for all Nature it need not be one of inactivity for the farmer and gardener. Where a stock of cattle is kept a good deal of time must be spent

in attending to their wants and *comfort*, and the punctuality and thoroughness with which this is done will have its effect upon the profits they will yield in addition to the satisfaction of feeling that duty has been very well performed and responsibility satisfied. It is a common error with some that when they feel that there is not so much to be done, they do nothing at all, and instead of rising early, as they do in summer, spend their mornings in bed or before the nice, warm kitchen stove, forgetting that their animals are early risers if they are not, and require attention with the first blush of dawn, at any rate, if not a little before.

But there is an old saying, that it is not only the early rising but the well spending of the day which is important, and even a winter's day may be spent profitably ; while the storm rages without, work can be done in doors. The harness can be looked over and repaired so far as can be done without the saddler's aid. Tools can be sharpened and all implements put into good working order, so that there will be no hinderance when the busy spring time arrives. It is said, " In time of peace prepare for war," and in time of leisure we should be prepared for double activity when the opportunity to be active comes. A farmer should see that he is provided, not only with just the one part which is in use of an implement, but with a number of duplicate screws, nuts, bolts and small parts of every machine. It is not unusual for a very important day's work to be delayed, by the breaking of some minor part of, say, the plough or mower, which the prudent farmer would have provided himself with, and learned how to adjust without having to go, perhaps several miles, to the smithy. If forethought and study of these matters had been practically carried out during the winter these losses of time and disappointments might have been avoided, and it is not easy to calculate how far a few hours delay in the seeding or harvest time may affect the result. If the land had been prepared for the seed one day earlier it would have been in before the rain which prevented its being sown for a fortnight. If the mower had broke and could have been quickly repaired, the most important day would not have been lost which preceded the thunder storm which broke up the fine weather and commenced a showery season which spoiled the hay.

The fruit room will also claim our attention and should be looked after as occasion offers. The apples which are of the long keeping varieties, the choicer specimens especially, should be examined, and any decaying ones removed to prevent the contamination of the others ; proper ventilation and temperatnre maintained by watchfulness and care. Then when the weather is fine the orchard will claim some attention ; after a fall of snow it should be tramped firmly round the base of the stems of the trees to prevent the depredations of nice. The bark may be scraped, not too deeply, to destroy lichens which are growing upon it. Young trees which have been staked should be carefully gone over to see that the stakes are not rubbing off the bark by the action of the wind and measures taken to prevent a cohtinuance of the mischief. Other matters will present themselves to the mind of the man who takes a thorough interest in his business, hence the season of winter will not be one of inertness to him but each day will find him something to do.

And what a glorious time the winter is for the young farmer to study ; not fatigued by the labors of a long summer's day his mind will be clear and capable to receive instruction and he may lay in a stock of knowledge against the time when he can put it to practical use. There never was a time when such opportunities were given for home study. The agricultural and horticultural press is full of every subject pertaining to the profession and the young farmer is to be pitied who does not take advantage of the means at his disposal. He should make it a rule to devote a certain time daily to study, and by this I do not mean mere reading, but *study* " read, mark, learn, and inwardly digest. " The farmer's club should not be neglected, if there is one in his locality, and is carried on as it should be, not only as a *club* for the purpose of improving the stock by means of the subsidies so generously granted by the government, but as an institute of learning where papers should be prepared, read and discussed at the meetings which in the winter time should be frequently held. Thus, social life would be improved, a general interest kept up, and what might be considered drudgery made a most pleasant and profitable way of spending a long winter's evening. If at the beginning of the winter sessions of the club were to be inaugurated and closed by a social entertainment to which the

ladies were invited, it would give éclat to the proceedings and render the club popular and useful.

But all work and no play makes Jack a dull boy. Therefore some winter amusements should be provided for the family. The heads of every family should look to this for, if homes in many cases were rendered more cheerful the young would not be so likely to seek for pleasure out of them. In neighbourhoods where a good social feeling exists the winter evenings are made pleasant by an interchange of neighbourly visits and these, if properly conducted, must have a happy effect. At such social parties some amusing games such as "forfeits," etc should be introduced. I suppose some puritanical friend would object to cards and, if there is any stake played for, the objection holds good, but for my part I cannot see that a social game at cards is at all wrong. At any rate it is better than village gossip and fault finding of one's neighbours, which are too often indulged in in social gatherings.

The fault of our neighbours with freedom we blame,
But we tax not ourselves though we practise the same.

Old world people who know no better have a dread of the Canadian winters, but the clear, bracing air, when not too much chilled by old Jack Frost, is simply delicious, and the pleasures of a country life, if that life is regulated by a strict attention to the duties it presents and advantage taken of the joys it can bring, is one that can and should be enjoyed and not dreaded or despised.

As to income, too, the system of winter dairying now so universally adopted, if properly managed has revolutionized the farmers finances and an increase can be secured at all seasons instead of, as formerly, when the cows were half starved and ot course gave no return but on the contrary as the old saying goes, "ate their heads off."

Then hurrah for winter! Let us hail it her return, not as a season of utter careless supineness but as one which providentially takes its place in the order of nature, bringing as all other seasons do, its opportunities, duties, responsibilities, and joys.

A SCIENTIFIC GRANDPAPA

"See, grandpapa, my flower!" she cried
"I found it in the grasses!"
And, with a kindly smile, the sage
Surveyed it through his glasses.

"Ah, yes," he said "involucrate,
And all the florets ligulate.
Corolla gamopetalous,
Compositæ, exogenous,
A pretty specimen it is.
Taraxacum dens-leonis!"

She took the blossom back again,
His face her wistful eye on.
"I thought," she said, with quivering lip,
"It was a dandelion!"

—Margaret Johnson in St. Nicholas.

I cut this out of a paper because I thought it well illustrated that scientists were too apt to fire above the heads of those they wish to instruct and leave them in a worse state of bewilderment than if they had been told nothing.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

There is plenty of talk at present about cooking, but few are found who will give up the time necessary to superintend its being well done. If instead of eating so many sweet cakes, the time given to making them were devoted to the manufacture of good wholesome bread, and that never eaten till it is quite cold or even 12 hours old, those dreadful hot cakes could be banished from the table, and in their wake would follow much of that dreadful malady

from which so many people, young and old, suffer so much in this country, viz., dyspepsia.

CARVING

Talking about cooking brings one to the fact that after a joint is well cooked, it must be well carved, but how often is the poor housewife filled with despair at seeing her work of preparation hewn and hacked to pieces by an unskilful carver! To carve well is an art not learnt in a day, but one that must be studied to know how to do it to perfection.

Let the young people watch well the actions of a good carver; noting well with what ease it is done, and the care that is taken to cut and serve each bit nicely; note the careful way each slice is put on the plate to avoid messing it, the gravy is served with the same care, to avoid splashing, and then if the vegetables are taken, or served with the same care so as to avoid mixing two sorts, much has been done to tempt the appetite. A good carver will make a joint go farther than a bad one, and will always leave a joint so as to look well if wanted to be served again cold.

Young people should be made to practise carving by their friends in private, and thus avoid any shyness when called upon to do it. Many people who are fair carvers of joints come to grief when called upon to carve poultry, and in no case is the carver's power more severely taxed than in carving a turkey so as to avoid waste and at the same time to serve each person big and little with the part and quantity required.

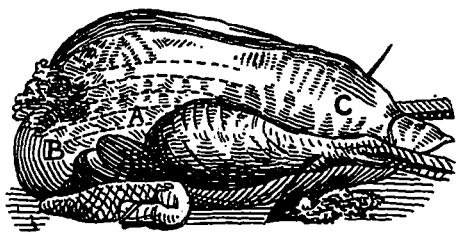


ILLUSTRATION.

Begin by carving slices from each side of the breast, in the lines marked in the engraving, cutting from A. to B.

Then remove the legs, dividing the thighs from the drumsticks, an instrument called a disjointer will be found useful to the unskilled carver, for unless the turkey is a young one and the exact spot known how and just where to catch the union of the joints, carving becomes difficult.

The disjointer will do the work well and enable the carver to divide a thigh in two, thus allowing a smaller portion to be served if wanted.

The pinions and that part of the body removed with it, are always a delicacy, and care should be taken to carve them nicely: the joint of the pinion will be found at B.

The stuffing you will find by making an opening at C.

Ordinary forcemeat is found by helping the breast.

BONING

Talking about serving brings one naturally to the subject of boning. In the case of a prime or inferior joint, boning a joint makes it go a long way, as the carving is so much easier. Take for instance a loin of mutton or pork, boned and rolled it will go twice as far as when served in the ordinary fashion, and then the bones make a delicious soup or gravy, so there is no loss whatever. With boned meat we generally get such accessories as stuffing, and this again, ekes out a joint. The usual stuffing for mutton is the same as for veal, but some people I know, who like onions, stuff it with sage and onions, and call it "mock duck." This, of course, is a matter of taste, personally, I prefer the veal stuffing. A rolled stuffed loin of mutton served with good gravy and red currant jelly is a dish for an epicure. Perhaps poultry is a little more difficult to bone than is a joint, both require a little skill which only practice can give. A housekeeper, who will give a little time and patience to the matter, will soon acquire the necessary skill and will feel repaid by the number of original and tasty dishes she will be able to place upon her table. A good rule to follow in boning is to use a very sharp pointed knife, and to keep it close to the bone all the time, bones can then be removed without destroying the symmetry of the joint, or hacking about the flesh. Fish, too, pays for boning or filletting, a good subject to practice on being a flat fish, such as a flounder, for instance. I should advise an amateur to start the boning of meat by practising first on a breast of veal or lamb, either of these joints rolled and stuffed makes a very nice dish indeed.

TURKEY STUFFED WITH CHESTNUTS

Lard the breast of the turkey with strips of larding bacon in regular lines, then cover it with thin slices of lemon ; butter a sheet of paper and wrap the bird in it, roasting it for an hour, and basting it carefully. After this remove the paper and lemon and roast again for half an hour or longer, according to size ; allow it to brown nicely, and at last paste it with butter.

To made chestnut forcemeat, peel two dozen chestnuts, throw them into boiling water, boil for ten minutes, after which drain them, and take off the thin skin. Return them to the pan with sufficient milk, or milk and water, to cover, and simmer them till tender. Have ready a medium-sized onion boiled soft, a tablespoonful of chopped parsley, and two ounces of fresh butter, slightly warmed. Drain and mash the chestnuts, mix with the other ingredients, and a plentiful seasoning of salt and pepper. The onion should be chopped. Many people prefer the chestnut forcemeat mixed with pork sausage meat, as being more tasty. When this is the case take equal quantities of each.

CHESTNUT SAUCE FOR THE ABOVE

Prepare about twenty chestnuts as before, or roast them till tender. If roasted the rinds and under skin are removed after cooking. Mash them and mix with an ounce of butter, a teaspoonful of castor-sugar, the strained juice of a small lemon, and seasoning of salt, pepper, and grated nutmeg. Put this mixture into a stewpan with ½ pint of milk and ¼ pint of cream ; stir till it thickens and is smooth, then serve in a tureen.

BROWN AND WHITE ROUX

These preparations, so useful for thickening good gravies, sauces, &c., at any time, are prepared as follows. For the first, melt ½ lb. butter in an enamelled baking dish, by a very gentle heat, skim it well, let it settle, then pour it into a tin saucepan, leaving the sediment behind. Put into a flour dredger about 7 ozs. of fine flour, shake this gradually into the butter as it cooks on the fire, stirring continually and allowing the mixture to acquire a light brown colour. It will take some little time, and when ready is poured into a jar for use when required. Being a solid mass, and well cooked, it will keep good for some weeks ; so the above quantity will not be too much for a good-sized establishment. White roux, used for white soups and white sauces, is made in the same manner, only it is not allowed to colour at all. Both are very convenient to have in the store-closet.

FOR THE BENEFIT of our lady readers we give them the best recipe we know of for their Christmas Plum Pudding. Take three-quarters of a pound of flour, two ounces of Borwick's baking-powder, two ounces of bread-crumbs, one and a half pound of suet, two pounds of raisins, one pound of currants, ten ounces of sugar, two ounces of almonds, one pound of mixed candied peel, salt and spice to taste. Mix the ingredients well together, and add six eggs, well-beaten, and three-quarters of a pint of milk ; divide in two, and boil eight hours.

PAY YOUR DEBTS FIRST

An English paper says : Most women are born with a desire to give away—to be generous to those they love, and it is this good trait that, when abused, results in much misery. It is sometimes very hard to be quite sensible (some call it stingy) when one is eager to make others happy. But pause and consider whether it is honest to give presents when you owe money, making some one wait for the money that is justly theirs.

Do you believe that if the friend who received your present knew the real truth she would enjoy your generosity ? That she would be pleased if she dreamed that the price of her lovely wedding gift was due to the delay of the payment of a bill, or your going about with little more than the proverbial two pence in your purse ? Surely not ; for she is a poor friend who would wish that your soul should be tried and your honesty weakened by your desire to remember, in a material way, her happiness. In the circumstances, would not a note of congratulations and good wishes have pleased her just as much, and made you more sure of doing right ? It may seem severe to call giving, when you are in debt, dishonest, but it amounts to about the same thing.

A CABBAGE CENTREPIECE

A novel and inexpensive decoration for the dinner table was evolved by an ingenious woman seeking to combine the maximum of effect with

the minimum of expense. The result was so charming that she resolved to make the idea public for the benefit of other housekeepers similarly situated. Here it is: Take a head of cabbage. One that has been picked too late is best, for the leaves open better then and are apt to be slightly curled. Lay the cabbage on a flat plate or salver and press the leaves down and open with your hand firmly, but gently, so as not to break them off. When they all lie out flat, stab the firm yellow heart through several times with a sharp knife until its outlines are lost, and then place flowers at random all over the cabbage. Roses are prettiest, but any flower which has a firm, stiff stem, capable of holding the blossom upright. will do. Press the stems down through the leaves and put in sufficient green to vary prettily. The outer leaves of the cabbage, the only ones to be seen when the flowers are in, form a charming background, far prettier than any basket. Roses are best for all seasons, but autumn offers some charming variations. The brilliant scarlet berries of the mountain ash, or red thorn, mingled with the deep, rich green of feathery asparagus, make a delicious color symphony most appropriate to the season.—*Boston Globe.*

The Dairy.

THE DAIRYMEN'S ASSOCIATION OF THE PROVINCE OF QUEBEC.

The Seventeenth Annual Convention of the Province of Quebec was held at Valleyfield on December 6th, and was attended by a large number of persons interested, practically or economically, in the dairy-industry.

The report of the officials stated that in the Province there are too many small factories; that the great object of the work was to induce these small creameries and cheeseries to combine into syndicates, so that a skilled teacher might devote one day each month to superintend and instruct each individual maker. There were, at the last report, 337 creameries and 1,323 cheeseries, and 223 combined factories, making butter and cheese as the demand ruled. Only 700 of these were syndicated; the rest had no instruction.

MM. Bourbeau and Piamondon; the Inspector-general and his deputy; read their reports. Out of the 23,791 cheeses examined critically by the butter, he found only 1,964 of the finest quality!

A question as to the possibility of doing away with the small factories gave rise to considerable discussion.

M. J. de L. Taché recalled discussions in previous conventions and considered that public opinion was becoming alive to the necessity of providing by law, subject to local option, central combined cheese and butter factories in given territories which should undertake the sole manufacture of milk and butter under direct government supervision: the hauling of the milk to these factories to be at the public cost, and existing establishments being indemnified in cases where it was desirable to merge them into larger establishments.

Mr. Garneau, M.L.A., doubted whether our legislators could agree on such an act, although he was personally in favour of it.

Mr. Girard, M.L.A., thought the trade largely responsible for the existing unsatisfactory features of the industry, as buyers very often do not sufficiently discriminate between good and inferior cheese.

Mr. J. H. Scott (A. A. Ayer and Co.) read a paper on the folly of sending out green cheese from the factory. Badly constructed ripening-rooms were the cause of the ruin of much cheese. In the spring and fall, cheese should be kept for thirty days, and in hot weather, from fifteen to twenty days, before being despatched to the market. Good ventilation, without draughts, was a necessity; the temperature to be under control —from 60° to 70° F. Good boxes and a standard of 75 lbs. to each cheese were recommended.

Mr. A. W. Grant spoke on the subject of cleanliness. The water, both at the farm and the factory was bad; filth, either from the animals or the cowhouse, was allowed to get into the milk. He mentioned a visit he had paid to the Cheddar valley in England, the cheese made in which district sells wholesale for 15 cents or so per pound, and where he saw even weeds eliminated because they affect the quality of the milk. All this care ensured a permanent high price for the cheese, of which it was impossible to obtain enough to lower the market. He considered that only five per cent. of the cheese exported was really first class; in the long run you cannot force poor cheese upon the consumer; he will give up its use; the trade can only be extended by im-

proving the article. As regards butter-making, if pasteurizing became general, he had no fear of future results.

Mr. Macpherson, of Lancaster (1), read a paper on the lowering of the cost of milk-production. Never sell hay or straw; but buy that which your thriftless neighbour has to dispose of. It is possible to get 5,000 lbs. of milk from an acre, where now only 1,000 lbs. are got.

The secretary, Mr. Emile Castel, explained the system of Pasteurisation in detail, in elucidation of Mr. Leclair's paper on the necessity of employing it in butter-making.

Mr. Macpherson gave his ideas on "Pig-breeding and fattening." Canadian bacon is selling for from ten to fifteen shillings a cwt. (112 lbs.) more than American, in the English market. From 4,000 lbs. to 6,000 lbs. of pork can be made in an acre of clover-pasture, the pork costing only 2 cents a pound; this would give from $80.00 to $100.00 an acre clear profit!

At the *Evening session*, a good deal of formal business was got through. The Bishop of Valleyfield addressed a few words of welcome to the audience; after which, the Hon. Sydney A. Fisher, Dominion Minister of Agriculture, spoke as follows:

This was the twelfth time he had been present at such a convention. He was an agriculturist before he was a politician, and the development of farming in all its branches was his one hobby. The present prosperity of Canada was due to the increasing exports of her farmers. The increase of dairy produces, according to the latest figures, had been 23 per cent.

He gave figures to show that the various home commodities had augmented in foreign trade to an amazing extent. In butter and cheese this especially held true, and, moreover, the quality had improved. Personally, he felt proud of this, and also that our butter could be sent to England in cold storage, a fact that had given it a better and wider reputation. For the future the English market was assured.

Mr. Fisher quoted the opinion of Mr. McKergow, President of the Montreal Board of Trade, as to the brilliance of the prospects for a still greater advance, as refrigeration is more extensively employed in storage and in steamships, an increase both in the volume and the price to be obtained. He also quoted the Manchester Guardian to the effect that Canadian butter is fast rivalling that of Denmark and Brittany, which has hitherto dominated the market, and that it is far superior to that imported from other countries outside Europe.

The Hon. Commissioner of the province of Quebec, Mr. Deschêne, was sorry he was not a farmer. Agriculture in the province was far from being perfect. He — very sensibly — observed that although the manufacture of butter was of great importance, other branches of agriculture should not on that account be neglected, as too much attention devoted to one specific branch might, and probably would, lead to the glutting of the market, the penalty for which would be severe.

On the 8th, in the afternoon, Mr. Gabriel Henry read a paper on the defects of curing rooms, M. Castel following with a discription of the best way of curing Cheddar cheese.

The whole tenour of the discussions during the convention has been to draw attention to the system of curing the products of well fed cattle. Cleanly manufacture and elaborate attention to details were only too often thrown away by carelessness in the final stage. Mr. Taché, Mr. Foster, of Brome, Mr. W. H. Scott, and other speakers, have dwelt upon the risk to which the careful dairy keeper is exposed under the existing system through their milk being mixed at the creameries and cheese factories with those of careless, ignorant or uncleanly contributors. The feeling seemed to be general that additional supervision, either by Government inspectors or men possessing distinct authority, was necessary, in order that the many should not suffer for the faults of the few. Only in this way would confidence become established in the importing countries, especially England. Shipments must be uniform in quality, Mr. Taché and Mr. Foster going so far as to ask that the Government should take the responsibility of testing as well as branding all shipments, establishing storage warehouses for that purpose in the ports of departure or principal centres.

Monsieur Gigault, Ass.-Commissioner of the province, confirmed M. Deschêne's statement, that the government would offer bonuses to induce

(1) Why will people lay the accent on the penult of this word. Shakespeare should have taught them better: "Old John of Gaunt, time-honour'd Lancaster."
Richard II, Act I, S. 1,

an improvement in the curing-rooms.

M. Dallaire read a paper on agriculture in general, comparing its condition in Canada with that of other countries.

Mr· McMurray and M. Grignon, on pig-feeding and technical agriculture, respectively, brought a highly successful convention to a close.

We are indebted to the *Montreal Star* for much of the information contained in the above paragraphs. Butter-making in winter must have opened the eyes of many of the farmers, for we remember well seeing, at St Liguori, in 1868, a herd of a dozen cows being dried off in the first week in November, "because it was not worth while bothering with them," though some were giving a fair "mess" of milk. Thanks to the exertions of the Dairyman's Association, all extravagant folly, or laziness, of this kind is, or soon will be, exploded.

BACTERIA IN CHEESE-MAKING.

If bacteria are desirable allies of the butter-maker. they are absolute necessities to the cheese manufacturer. • Without their agency in ripening cream, the butter, though it may taste flat, is still usable, but cheese is worthless without them. New cheese is not palatable ; it tastes like fresh milk curd, and is not at all pleasant. The proper flavor of cheese appears only as a result of a ripening process which is allowed to continue for several weeks or months, the flavor slowly growing stronger all the while. This ripening is the result of the action of bacteria. It is customary to recognize the normal ripening and the abnormal ripening of cheese, although no very sharp line of distinction can be drawn between the two. The normal ripening of cheese is the one that produces a good marketable product, and the abnormal ripening an abnormal product.

Up to the present time we have very much better knowledge of the types of abnormally ripened cheese than of normally ripened cheese. In the last few years very many such cheeses have been studied. It is a well known fact that such abnormally ripened cheeses make their appearance in almost all cheese factories. Sometimes as high as 50 per cent of the cheeses made in a factory are worthless, or comparatively worthless, from the results of abnormal ripening.

Many investigators have been studying the various types of spoiled cheese for the purpose of discovering the cause of the trouble.

The most common type of abnormally ripened cheese is one in which there is a large accumulation of gas, chiefly carbonic acid, but sometimes ammonia or free nitrogen. This accumulation of gas causes the cheese to swell and produces large cavities. In another special form of a similar infection, the cheese is filled with innumerable small holes. This abnormal swelling has been found to be produced by certain species of bacteria or yeasts growing in the cheese, which develop a superabundance of gas. Some twenty-five species of microorganisms up to this time time have been definitely proved to be the cause of such an abnormal swelling of cheese, including both bacteria and yeasts. It would appear, however, that much depends upon the conditions in the cheese and the numbers of the organisms present. It is certainly true that some of these species may be present in small quantity in the cheese and it will ripen normally, while if they are present in large quantities there will be an abnormal swelling of the cheese. The sources of the organisms in this long list are of course variable. One important source are the organisms that come from cows suffering from udder inflammations. Other sources may be in special lots of of hay, or they may come from sources that are entirely unknown. So varied appear the bacteria that no general directions can yet be given for avoiding them, and so little do we know of the proper conditions, that very little can be done to remedy the trouble.

Other types of abnormally ripened cheese that have been studied, as far as I know of, are red cheese, blue cheese, black cheese, bitter cheese, and poisonous cheese. In the last case the cheese becomes impregnated with a poisonous ptomaine, produced by organisms as yet entirely unknown. In short, all the types of abnormally ripened cheese which are distinctly recognized in the cheese factory have been studied, and practically all of them at the present time have been traced to an origin in certain microorganisms.

Studies of the bacteria in normally ripened cheese have consisted in the examination of the bacteria in the cheese at intervals in the ripening, from the first day until the time the cheese is fully ripened. It appears that the multiplication of bacteria in cheese is comparatively slow. In

cream, during its ripening, the bacteria multiply with prodigious rapidity, increasing perhaps six hundredfold to a thousandfold within twenty-four hours. In cheese, however, while for some weeks the bacteria do increase in number, the increase is very slow. In one case an increase was found of about sixtyfold in eighty-five days; in another, about one hundredfold in twenty-eight days. After a time, moreover, this increase in bacteria comes to an end, and, later, the number of organisms present in a living, active condition becomes less and less, until finally, at the end of the ripening, the number is very much less than it was during the middle of the ripening period, sometimes coming down to nearly the original number. There are, however, great irregularities. At times the multiplication appears to be very much greater and more rapid than at others; sometimes the number present at a given stage of the ripening is ten times as great in one specimen as it is in another, even though the latter had the larger number to start with.

As for the species of bacteria present, this, too, undergoes constant change during the ripening. At the beginning the number of species may be considerable, depending of course, upon the number in the original milk from which the cheese was made. But as the ripening continnes the number decreases, and finally, at the end of the ripening, in many cases there has been left a single species or a very small number of species. Some species in the milk originally, disappear at once and can have no share in the ripening process.

H. Weston Parry.

Nov. 26th 1898.

(To be continued.)

WHENCE ARISES THE SUPERIORITY OF THE DANISH BUTTERS.

The *Forzogslaboratoric*, of Copenhagen, has just published a report on last year's competition in Danish butters. At these, 683 creameries took part, of which number 666 had adopted *Pasteurisation*. Most of them Pasteurised the cream; only a few, the milk before skimming. It is to be observed that all the 17 creameries that did not Pasteurise cream or milk were put into the lowest division, and we cannot avoid deducing from this that there is a great loss of quality in not employing this process.

Out of the 666 creameries above mentioned, 97 per cent use the ferments of lactic acid now on the market; and the difference in the quality of their butter is most noteworthy, for the whole of these 97 creameries out of the hundred that Pasteurise *and* use lactic acid ferments, exhibited much finer butter than the two and a half out of the hundred that only Pasteurise. (*From the French*).

SELECTION OF MILCH-COWS.

Competition and special registers for the selection of the best milch-cows.—The practice in England and Belgium.—What we ought to do here.

The Belgian government has just issued a bulletin containing very interesting information on dairying, and on the working of agricultural societies.

The results are given of an experiment in Germany, as to the yield of milk, with 16 cows of the same breed, all receiving the same food; the milk of each milking being analysed separately.

These analyses shewed that the production of butter in a year from cows equally treated may vary by as much as 216 lbs! In a year's milking of 300 days, the best cow gave 390 lbs of butter, the worst gave only 174 lbs. This shows the need of selection.

Says the bulletin: "The selection of cows, much more than any modification of rations, enables us to raise the yield, by getting rid of the poor cows and replacing them with better ones. Unfortunately, in Germany, as well as elsewhere, few breeders have followed this sensible plan."

In the same bulletin, we learn from the reports of the working of the *comitia* of the country, that many of the agricultural societies are drawing-up herd books.

We surely should imitate the *comitia* of Belgium by persuading our agricultural societies and farmer's clubs to take steps to designate the best cows of the province, either by competitions or by individual tests. The results obtained should be stated in a register kept expressly for that purpose, no entries being admissible except of such cows as shall give a fairly large yield of milk.

A like register, entitled "The Golden Book,"(1)

(1) The "Libro d'Oro" was the Venetian *Peerage*, so to speak. Ed.

has already been opened by the Council of Agriculture of the Province of Quebec, and an insignificant number of entries made therein.

In order to publish the names, etc., of the best cows, and to encourage our farmers to make selections, we must *decentralize* more, and, after the example of the Belgians, inducc our local associations to keep such registers.

Moreover, these associations ought to get up competitions of milch-cows as regard the production of milk alone. The entries in these competitions would confer greater value on the cows entered and the rivalry thus created would enable our farmers, by selection and the consequent increase of the yield of milk, to cause a vast improvement in the dairy-industry of the province.

This very year, at the Royal Society of England's show at Birmingham, three classes were opened for milch-cows that were judged on the most rational plan, namely, in accordance with the yield and the quality of the milk.

In the class of Lincolnshire-Red Shorthorns (*Dairy-Shorthorns, Ed.*), the 1st prize cow, 2½ years old, gave 59½ lbs. of milk in 24 hours, testing 31.4 oz. of fat. The 2nd prize cow, 10½ years old, gave 58½ lbs. of milk, testing 31.4 oz. of fat.

In class 148, comprising cows of any breed, cross, or weight, a cow of the Shorthorn-Ayshire cross, 6 years old, gave 63¾ lbs. of milk, of the stipulated richness.

What a difference there would be if our societies or clubs were to get up such competitions as these !

The Farm.

ESSAY

On the best method of culture of cereals, corn, grass seed, and clover, with regard to the production of the seed and the manner of harvesting, cleaning and keeping these seeds

(*First prize at the Sherbrooke show, 1898.*)

This subject has been greatly neglected by the farmers of this province, to whom it is of the greatest importance. Change of seed is a very important point ; I am of opinion that the change of climate is very beneficial both as regards quantity and quality of grain. In most cases fall ploughing is the best but it should be good ploughing, 6 inches deep and not more than 9 inches wide, and give the ridge a good shape. This, with good drainage, will not allow the land to sodden and become hard, such as we too often see in bad ploughing and flat ridges. In the spring care should be taken not to work the land until it is dry. First give it one stroke with a pair of double harrows to loosen the surface ; then take a spring tooth harrow or some kind of grubber and give it one or two strokes according to the hardness of the soil. Next, one stroke with the double harrows and sow the seed. If it is a drill seeder one stroke with the double harrows will do ; if it is a broadcast, follow with two more strokes. Then make the water-furrows carefully and roll. The above working is not too much as the more the land is worked the better the crop will be, and the grain will mature better, a point of great importance in seed grain. Another important point in seed grain is the way it is harvested. Now that so many binders are used, grain is too often cut when a little damp, and then taken in too soon. The middle of the sheaf gets heated, which more or less injures the grain. Grain intended for seed should not be threshed before the winter, for it matures and improves if left in the straw for two or three months before being threshed. In cleaning seed grain the fanners should be arranged so that all the wind possible should be obtained and only the heaviest grain retained for sowing. If the grain sown be all of equal weight, all will germinate at the same time and ripen equally. In order to obtain the best results as regard yield, it is necessary that only thoroughly developed, heavy, clean seed should be sown, and it is a waste of money to sow any other.

In growing corn, the land should be thoroughly worked, both in fall and spring. The manure should be ploughed down preferably in the fall. The quantity will depend very much on the quality of the soil, say about 25 to 35 cartloads per acre. Corn can be grown on several kinds of soil, light gravelly or sandy soil, clay loam or heavy clay, provided the land is well drained so that the water will not lie on it, especially after the seed has been sown. It is not advisable to sow corn before the middle of May, as a very little cold checks its growth. It should be sown 3 feet apart each way and, if, from 200 to 250 lbs

fertilizer (1) per acre is used it will help to mature and ripen the corn before the frost in the fall.

When it has come through about two or three inches pass a Breed's weeder (or a round toothed harrow with teeth slanting backward) over it. It may crush it down some but it will pick itself up again through the night. After this, run through with a light cultivator every week or ten days till it is too high for the horse, and also hoe it to keep the weeds from among the corn. Leave about four plants to each hill and pull out all the rest. When ripe, the ears are brought into the barn and husked, leaving a few husks to fasten them in traces 2 or 3 feet, which are hung up over poles in a dry shed. This, of course is in default of having proper corn cribs. The kernels near the point of the ear should be taken off separately, as they do not produce good ears. Only the earliest flint varieties of corn should be saved for seed in this province, though there are several Dent varieties such as "King of the Earliest," "Early Huron Dent" and "Butler," which can be relied on to ripen in ordinary years. The principal sorts grown are, yellow and white Canadian flint, Early Longfellow flint, Early Compton flint and any of these sorts are safe to grow for seed.

Timothy is a very easy seed to harvest, but the land requires to be entirely free from weeds. Cut when perfectly ripe, which is generally about the end of July. If cut with a reaper, set it as high as possible so that no weeds will be cut with the heads of Timothy. In the event of the farmer having no reaper, the heads should be cut by hand and bound. This past year, some of the farmers in Vaudreuil district used Frost & Wood's new binder to cut and tie their Timothy for seed purposes, as this machine can be raised 20 inches from the ground. As soon as tied it should be stood up in some other place so that the ground will be clear to cut remainder of the crop for fodder. Leave it out for at least two weeks ; rain will not hurt it as regards the vitality of the seed but will only make it easier to thresh. Be sure to keep the seed in a dry place till sold or sown. In order to have finest unhulled seed it should be threshed either with the flail or a block of wood, say 10 feet long by 1½ ft in diameter at the extreme end and tapering towards the other, in which a ring is driven and a horse yoked to this ring. The Timothy to be threshed is thrown down in the circle covered by this log and the horse draws the log around. Small blocks of wood are nailed to the log which squeezes the seed out, as it were.

An ordinary grain thresher, by leaving the cylinder partly open, will take the seed out ; but this system hulls a great deal of it, and though this does not impair its growth, it reduces its market value, as the highest price can be obtained when the seed is bright, clean and unhulled.

Clover is much more difficult to manage ; it take longer to ripen ; but experience makes it easier. In preparing for clover the land must be thoroughly worked so as to be clean and free from weeds. It is not advisable to sow clover for seed on a sharp gravelly soil as such is easily affected by the heat of the sun in a dry season, which will prevent the seed from maturing properly. The best is a clay loam or heavy clay. Sow from 6 to 8 lbs per arpent with two gallons Timothy. The Timothy only comes up the second year ; the first year it will only be clover. It is cut when perfectly ripe during the month of August. (1) Leave it to wither on the field for three or four weeks and when very dry it is taken to the barn and only threshed in about January. To thresh, put it through, stems and all, on examining what falls at the back of the machine lots of heads of clover are found. The machine is furnished with a slide passing across the back of the cylinder and closing completely the front opening. Collect all the clover heads and put them through a second time after having closed the opening by means of the slide. When the machine is filled with the heads they are left there to grind, so to speak. Next open the slide so as to allow the glumes to pass through and the seed then falls cleaned into the winnower, while another lot is threshed. In this way 200 or 300 lbs can be cleaned in a day. There has been a deal said about clover seed taken from the second crop, but it is my opinion it cannot be done, as the seasons are so short in this province.

The above remarks apply to the long late, or Rawdon variety of red clover which is the only variety grown for seed to any extent in this province. Alsike clover seed can also be saved in the

(1) What sort? The same fault runs thorough all the essays. Nitrogenous manures delay the ripening process. ED.

(1) The great seed-growers, in the Eastern counties of England, invariably feed off the first crop of clover with sheep : it makes the seed-crop come more level. ED.

same way as the red. The reason for sowing Timothy as mentioned above is that if the season has not been favorable and the clover is partly or nearly all killed, the Timothy will come up with the clover and make a good crop of hay. But if the clover all comes, it will only allow the Timothy to appear the second year. Therefore, there is a certainty of getting a crop of either one or the other.

GEORGE BUCHANAN.

Cote St. Michel, Montreal, Aug. 1898.

TEMPORARY PASTURES

Why some permanent pastures fail—Grass leys for three or four years—Mixed farming

PART I.

Although a large proportion of the cultivated soil of this country is perfectly adapted for being laid away to pasture, it is unquestionably true that there are soils which do not take kindly to permanent grasses. There are also cases where the absence of fences and the lack of funds to make them, the cultural preparations, and the expense of the seeding, combine to place the creation of a permanent pasture out of the question.

By alternating grass with grain and root crops, the farmer is enabled to work with less capital and to reduce his labour bill.

Several of the reasons why some land will not grow a satisfactory permanent pasture are very ably stated by a great French agricultural authority, M. H. Joulie. He says: "At first the grass plants find a soil suitably dressed with farmyard or other manure, that is to say, containing all the elements necessary for their growth. So they grow vigorously. But little by little the soil becomes more compact, the subsoil more dense, and the rain penetrates with greater difficulty. During the drought of summer the moisture rises up less easily from the subsoil, and thus, from physical causes, the production settles down to a normal level. In time, the chemical condition of the land also undergoes a material change; not only is the layer of soil which is occupied by the roots rendered incapable of supplying a sufficiently large amount of the elements necessary to the vegetation, but, owing to the continued accumulation of vegetable débris, the layer of soil in which the roots live at length becomes sour, even where the earth may originally have been calcareous, and may still be so in the underlying layers, so that the good plants tend to disappear and give place to a vegetation which is characteristic of sour land."

After giving the reasons and experiments which prove his case, M. Joulie adds: "From all that has been stated we can now draw the following practical and economical conclusions:

1st. That the cultivation of roots and cereals deprives the soil of nitrogen, whilst that of grass and leguminous plants, temporary or permanent, on the contrary, causes it to accumulate in the soil. That nitrogen being the most expensive manure to buy, it is not economical to devote part of the land permanently to arable and part to grass, for while the one uses up the nitrogen, the other accumulates it in excess. On the contrary, it is preferable to alternate on the same piece of land the cultivation of roots and cereals with that of grass leys, so as in a measure to repair by the second the loss of nitrogen which the first cause to the soil. By this means, cultivation can be kept up indefinitely without purchased nitrogen, provided that the land be maintained in a fit state of richness as regards the mineral elements which are indispensable to healthy vegetation.

2nd. The practical application of this principle is, that the temporary occupation of the land by a grass ley for two or three years, which takes its turn in the rotation of crops, should be preferred. We thus secure the improvement of the soil obtainable from the cultivation of leguminosæ—such as clover, lucerne, vetches, etc.—But as this class of plant will not succeed on every soil, temporary "leys" with graminaceous (grass) herbage ought to give, where leguminous plants do not succeed, analogous, if not equally good results, and so assist materially in solving the problem of producing cereal, root, and other crops with increasing economy."

Upon such soils alternate husbandry may be adopted with immense advantage. The periodical breaking up of the land at the end of every three or four years, and its treatment as arable land for one or two seasons, will render it capable of again yielding heavy and valuable crops of grass. As a light sandy soil rarely forms a satisfactory pasture, it is far wiser to sow a temporary mixture upon it.

The heavy crops that can be obtained from artificial grasses during a limited number of years

are only partially attributable to the judicious selection of the grasses and clovers. The chief causes are that the continuous use of manure has put the land into good heart, and cultural operations have allowed the atmosphere to set free the elements which grasses readily assimilate. The third or fourth year is generally regarded as the critical time for a permanent pasture. There are, unfortunately, plenty of instances where improper seeding or starved land renders a profitable pasture impossible. To these preventible causes I am not now alluding, but to soils which, in despite of fair treatment, agglomerate and become impervious to atmospheric influences, and refuse to give up the necessary elements for the free growth of grasses.

Apart, however, from this question, of an unsuitable soil, there are weighty reasons for the adoption of a system of alternate husbandry. Two-thirds of many farms might with advantage always be in artificial grass. A great saving would be effected in tillage operations, horseflesh and labour. The land would break up at the end of the term in excellent condition and full of clover roots as a store of nourishment for the succeeding grain or corn crop. The custom of maintaining agricultural holdings that are almost entirely arable or almost entirely pastoral, either in this country or in the old country, has failed to meet the necessities of our time. What is wanted now is a combination of arable and pastoral husbandry, so that when grain does not pay and stock is profitable, or vice versâ, each occupier may obtain benefit from one branch of his business. The grazier would be profited in being able to winter his own stock, instead of selling it to make a winter's manure for the arable farmer. On the other hand, the arable farmer would not then be compelled to sell his stock as soon as his roots were exhausted, or pay the grazier to summer the animals for him.

WALTER S. G. BUNBURY,
Compton Model Farm.

(To be continued)

The Poultry-Yard.

SUNLIGHT IN WINTER

The hens will always seek the warmth of the sun on a cold day, and especially if there is a high wind as they are easily affected by cold draughts. The sunny spot of a shed, which is open on one side only, is preferred. If such a place could be provided for the hens, even if in no other manner than by arranging some stalks or straw on poles, it would greatly induce laying in winter when eggs are high. Hens will not lay well in cold weather unless they have a warm place, and not only does this apply to the night, when they are on the roost, but during the day also. An open shed, and the warmth of the sun pouring down on the hens, will induce them to dust and scratch, exercising themselves briskly, which in turn promotes the appetite and aids digestion. To keep hens in a cold poultry house, where the sunlight gets in only during a portion of the day, while the hens are chilled until the sun returns the following day, is to call for a large amount of food in order to promote bodily warmth, while the number of eggs secured will be small; but with plenty of light and warmth, there will be health and a regular supply of eggs.

S. J. A.

WHERE THE LOSS OCCURS

The loss in keeping poultry is mostly in the winter season, and results from keeping over until spring stock that consumes food without giving any return. Such stock consists usually of immature pullets and overfat hens, surplus cockerels, late hatched chicks and moulting hens. The food is not the only consideration in the matter, as the room is also taken up and occupied. A dozen laying hens in the entire flock have the duty of convincing their owner that poultry pays, while the others eat their share of the food and refute the impression made by the profitable members of the flock. Nearly all poultry houses contain unprofitable stock, and the only reason for allowing such is the daily expectancy of each beginning the work of egg production. There is no halfway house in the matter of poultry keeping, and but little reliance can be placed on the future. It is the everpresent that we must meet, and no one should attempt to wait for a profit.

The best hens that are known will find it difficult to recover lost time, and this is more applicable to the surplus stock that give no promise until spring comes again. Loss of time is loss of profit, and the safest and surest way of avoiding loss is to keep no unproductive stock.

NOVEMBER

When November comes, all work about the poultry houses should be done, and nothing left to do, but the daily watering and feeding. The cold weather is now begining in earnest, and the open shed with curtains for the bitter cold or inclement weather, will be the play-ground for the fowls. They must be kept in exercise to be in good condition and pay for their keeping. Dry leaves straw or hay should cover the entire floor of the shed, and the grain should be scattered here for the fowls to find it. There may be some of the hens that are not quite through with the moulting at this time; these should be disposed of to decrease the expenses. It is hardly probable that a hen so late in moulting could begin laying before spring, and money saved in this way is so much money made. Feed those fowls not entirely through the moult a liberal amount of nutritious food and meat. Use plenty of green food in the laying pens; a head of cabbage is good, tied up a foot or so, that they must jump for it, and so get exercise Vegetables in the cooked rations are also good.

HOW Mr. WYCKOFF FEEDS

Having given in another issue Mr. Hunter's method of feeding, I now give Mr. Wyckoff's method.

A soft food is fed in the morning, but it is noticeable that it contains no cooked vegetables. He takes one bushel of corn and two of oats, has them ground up together quite fine, and to each two hundred pounds of this meal he adds one hundred pounds of bran. This mixture is moistened with skim milk, sour milk, or butter milk, (with either one or all of them, and five or six pounds of beef scraps added. If he has no milk, more beef scraps would be needed. This morning feed is given in V shaped troughs which are about ten feet long. After ten or fifteen minutes he passes through the houses and gathers up any food that may be left in the troughs; but if any of the fowls seem to be hungry he feeds a little more in that pen. He wants them to have all they will eat up readily. The noon feed consists of the green food for the day, which is either mangels, beets or cabbage in winter, clover or kale in summer. Sometimes he throws down a very light feed of mixed grain on the litter, to make them scratch. This mixed grain which is the same for the night feed also, consists of two bushels each of wheat, oats, buckwheat and one bushel of corn; in winter two bushels of corn are used, which thus makes the mixture, equal parts of the four kinds of grain. Sometimes he adds barley, if it is reasonably low in price, and the night feed is a full one, i. e., all the fowls will eat up clean.

S. J. ANDRES.

RAISING AND DRESSING OF POULTRY FOR THE BRITISH MARKET

To the Editor of the JOURNAL OF AGRICULTURE.

DEAR SIR: As there has been a start made at raising poultry for the English, or rather British market, and as I have superintended the killing and dressing of nearly 200 chickens for that market, a few observations may not be out of place. First, as to the kind best adopted for that purpose, there were several kinds tried, barred Plymouth-rocks, Brahmas, Leghorns, and a few mongrel breeds; but blood in fowls tells as well as in other live stock. The fowls that made the most gain, the heaviest and fattest, were the Plymouth-rocks; but, on the other hand, great care had to be used in picking off the feathers—as they were very tender and easily torn if plucked in a hurry. The first week they were fed, they gained well or rather perhaps say the first 10 days, they were permed up in a coop 6 feet long and 18 inches wide, by 18 inches high, with 2 divisions in it, in this were put 15 chicks, 5 in each compartment. The coops are made of narrow strips about one inch wide by half an inch in thickness, placed at least 1½ inches apart, these coops are set upon tressels, say 2 feet from the ground, a small trough is placed in front for feeding purposes on the outside of the coop—there is also a small slide door—3 slats wide, in order to get the chicks in and out. They must be fed on fine meal (ground very fine) made into a thick batter; milk is the most profitable for fattening with, but water will do, though it is not so good. They must be kept penned up all the time unless some of them are taken ill; in such a case they must be let loose. After they have been fed for say 10 days, or so, they are then stuffed, this is done by a rubber tube set on a machine made expressly for the purpose, and worked by a pressure of the foot on a paddle which sends the food immediately into the crop. This can

also be done with advantage and profit for another period of 10 days, in all about 3 weeks. In the experiments made, some of the Plymouth-rock chicks gained over 4 lbs. in weight, although they were fed for a much longer period, they were weighed every week and also when they went in, and as stated above, more than three-fourths of the gain was made when the first start was made in feeding after they were put in the coops, and in the first 10 days of cramming.

Now comes the dressing ; they must not get anything to eat for at least 36 hours before killing, they can get all the water they want to drink. Take a chick by the feet in the left hand, and the head in the right, with the crown in the hollow of the hand ; place the point of the thumb on the back of the neck, a quick pressure and a pull at the same time and you dislocate the neck ; commence plucking at once taking care not to tear the skin, leave say about 1½ inches of feathers around the head, about 8 large feathers in each wing at the point, the rest are all taken off when warm ; leave the fine down on with the small pen feathers ; they are then put on a shelf about 7 inches wide with a rise on the front edge about 3 inches, they are placed on this shelf on their backs with the heads hanging over ; a narrow board is then placed on the chicks' bodies with a good weight placed on top, they are left until perfectly cold, but not frozen. They are then packed in cases 5 inches deep, 18 inches wide and 27 inches long with a partition across the middle. For large chicks, weighing, say, 6 lbs. and over, the cases should be 20 inches wide and 30 inches long. Each bird is then rolled in paper, the head is turned back, the chicks are placed with the head-ends outside, 12 birds in each case, 6 in each row. They must be all weighed so as to have them equal in size and marked as follows :

12 Fowls, r weighing	gross	lbs
	tare	"
	net	"

The shipper's name can be placed in the centre. Shipped in cold storage, inthis way, a profitable trade may be worked up. The raising and feeding of turkeys may be made a profitable business as there is hardly any limit to the demand for 2 or 3 months in the year in Great Britain, not like the American market only one day, Thanksgiving, and perhaps a small demand at Christmas. I may also say that when big birds are fattened you ought not to have more than four in each compartment—although, at first, 5 can easily be kept.

PETER MACFARLANE.

Chateauguay,
November 30th, 1898.
"St. Andrews Nicht."

NOTE.—When the comb and wattles begin to turn pale, the fowl is in danger: kill it at once. ED.

MAKE PREPARATION FOR EGGS

Those who make a business of supplying eggs for winter use prepare for the egg supply with great care. I visited some time ago a friend in the U. S. who makes a business of raising his own fowls for his egg farm. He has several houses built for winter layers. They have an aisle in the centre and the pens for the hens on either side. All feeding, watering and egg gathering is done from this aisle without going into the pens ; the dropping board in also cleaned from the aisle, the only time necessary to go into the pens being when they are cleaned out.

When the breeding season is at hand, male birds are placed in the pens containing the hens that have shown the best results as egg producers, eggs from these hens are put under hens to hatch and the hens care for these young chicks. They are placed in coops on a wild rough piece of ground that is overgrown with underbrush, and here the young stock roam the whole summer. As the fowls grow, the inferior specimens of both male and female are culled out and dressed for market. Only the largest and most thrifty specimens are kept for layers ; these are placed in the houses as soon as they show signs of being ready to lay and they are kept in these pens until it is thought best to kill them for market. A record is kept of the eggs laid by each hen, and if any of the hens fail to produce the proper number of eggs, the birds are closely watched and the hens that do not lay as they should are removed and others put in their places ; by this method only the best egg producers are kept. White Leghorns were used mainly and some White Wyandottes were kept. This winter quite a number more of the White Wyandottes will be added from stock raised in the same way as the Leghorns, in order to fully test their laying qualities.

The yards in connection with the winter houses are of good size and well cared for. A space at the outer end is built off with a twelve inch board set on edge ; this space is filled with sand and covered with straw ; into this straw is thrown all their grain ration during good weather. Here, under the shade of fruit trees, they scratch and hunt for their food. When this straw is well broken and needs to be removed, it is used for litter for the floor of the duck houses, and when removed from these it is piled up with the other droppings from hen houses and barn where it can be nicely kept until the proper time comes to use it upon the farming land as manure : in this way nothing is wasted. During bad weather in winter the floors of the houses are used for a scratching place and the same rule is observed Nothing is allowed to go waste about this plant, and the owner finds in it a good investment for his money and reasonable pay for the time and attention that he gives to his fowls.

S. J. ANDRES.