

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées

Cover title missing/  
Le titre de couverture manque

Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/  
Transparence

Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/  
Comprend un (des) index

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title on header taken from:/  
Le titre de l'en-tête provient:

Title page of issue/  
Page de titre de la livraison

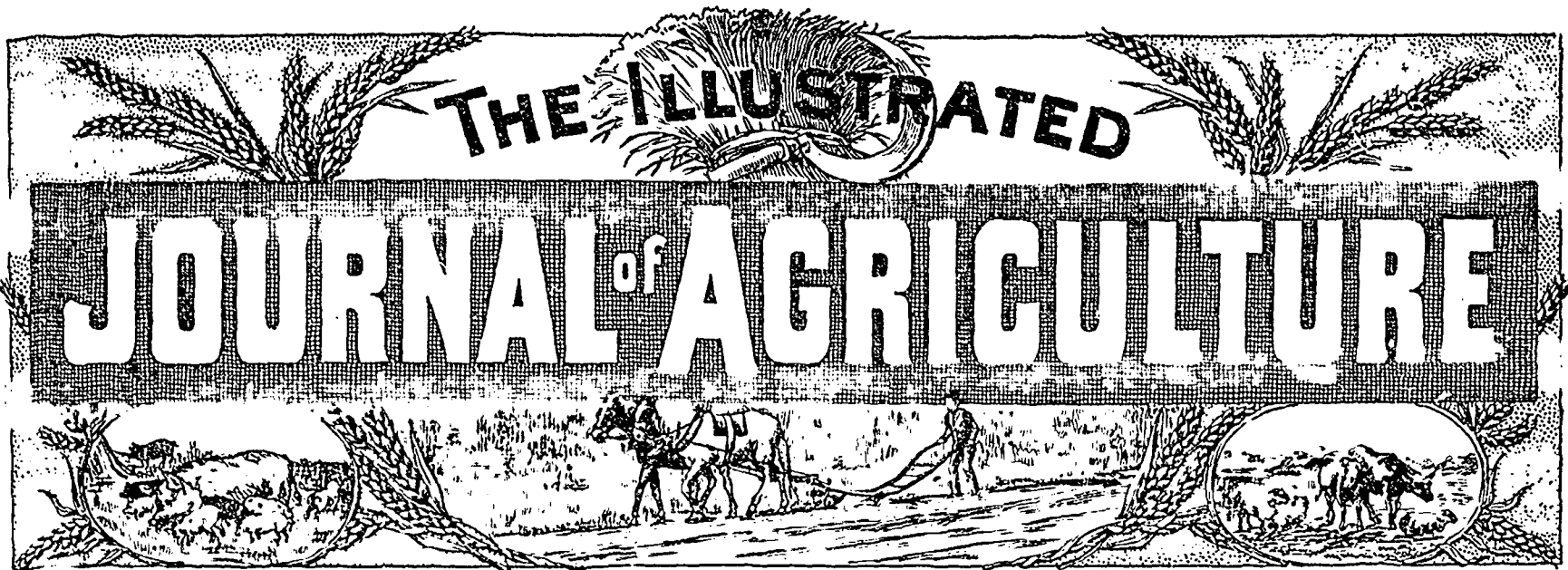
Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments:/  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below/  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Vol. 15, No. 9.

MONTREAL, SEPTEMBER 1, 1893.

\$1.00 per annum, in advance

**PUBLISHED BY**  
**EUSEBE SENEGAL & FILS,**  
 PROPRIETORS,  
 20 St. Vincent Street,  
 MONTREAL.

The ILLUSTRATED JOURNAL OF AGRICULTURE is the official organ of the Council of agriculture of the Province of Quebec. It is issued Monthly and is designed to include not in name but in fact anything concerned with agriculture, as Stock-Raising, Horticulture, &c., &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, 4 Lincoln Avenue, Montreal. For subscriptions and advertisements address the Publishers.

TERMS.—The subscription is \$1.00 a year payable in advance, and begins with the January number.

**Drs Mathieu & Bernier**

Dental Surgeons, corner of Champ de Mars and Bonsecours streets, Montreal. Gas or electricity used in the extraction of teeth. Artificial set of teeth made with or without palate. Teeth repaired and restored by the latest process.

**PIANOS** HAZELTON, DOMINION, BERLIN.

ALSO  
**Eolian, Vocalion and Dominion Organs.**

The largest and most varied stock. One sole price and the lowest. Terms easy. No agents. Old instruments taken in exchange for new ones. Pianos to let. Repaired and tuned. Second hand pianos of all prices. A visit and correspondence respectfully solicited.

**L. E. N. PRATTE**

1676

NOTRE-DAME, Montreal.

**FRUIT EVAPORATOR**  
 THE ZIMMERMAN  
 The Standard Machine  
 Different sizes and prices. Illustrated Catalogue free.  
 THE BLYMYER IRON WORKS CO., Cincinnati, O.

**Frank Wilson**

SOLE AGENT IN CANADA

DE LAVAL CREAM SEPARATORS STEAM AND HAND POWER.

SEPARATORS REPAIRS.

EXTRACT OF RENNET.

DR. BABCOCK'S MILK TESTERS.

DAIRY PARCHMENT PAPER.

N° 33 ST. PETER STREET, MONTREAL.

Bell Telephone 2755.

P. O. Box 1824.

**Selected Seeds**

FOR THE FARM AND GARDEN

**WILLIAM EWING & Co**

(ESTABLISHED 1869)

**Seed Merchants**

142 McGill Street and Corner St. Henry and St. Maurice Streets

MONTREAL.

Our annual SEED CATALOGUE is now ready and we will MAIL IT FREE to all who send a postal card giving their address.

Besides a full assortment of GARDEN, FARM and FLOWER SEEDS —and ENSILAGE CORN, of all the best sorts we offer PURE GROUND LINSEED OILCAKE and COTTON SEED MEAL—prices on application.

PURE BRED

**Ayrshire Cattle**

I offer for sale selections from my prize herd of Ayrshires. The Females are all heavy milkers or the produce of such. At the last great Exhibition in Montreal I secured a prize in every section I had entries in and the 3rd prize for Herd. "SILVER KING" (1st prize in his class at Montreal and Hochelaga in 1892) is my stock bull, and his calves cannot be beaten. He was imported in dame by the late Thomas Brown, and his sire, grand sire and great grand sire, were the leading Ayrshire bulls of their day in Scotland, and in their turn retired from the show ring with unbeaten records. His dame was 1st as milch-cow at Montreal Exhibition and also in 1892 besides taking the diploma as the best female Ayrshire, and on both sides he is descended from exceptionally good milking strains.—Correspondence invited.

**Duncan McLachlan,**

Petite Cote, near Montreal.

**STE. ANNE'S HERD JERSEYS**

THE OLDEST AND LARGEST HERD OF

**Pure St. Lambert - Jerseys**

IN THE WORLD

85 HEAD OF THE WORLD RENOWNED

**Victor Hugo—Stoke Pagis Jerseys**

THE GREATEST BUTTER FAMILY KNOWN

HOME OF THE CELEBRATED COWS.

JOLIE OF ST. LAMBERT and her three famous daughters Jolie of St. Lambert, 3rd, 4th and 5th winners of the Silver Medals, Sweepstakes Prizes and the Farmer's Advocate Silver Service Prize for the best dairy cows of any breed. Winning at Toronto, 1885, Quebec, 1887, Kingston, 1888, and Toronto, 1890.

Gold Medal Herd Ottawa, 1889 and 1890 First prize and Diploma Herd Ottawa, Kingston, Quebec and Montreal, in competition with all the principal herds in Canada.

The Foundation cows in this herd are:  
 Jolie of St. Lambert, 5726, Canada Champion Milch Cow, 15 lbs. 15 oz. butter, 48 lbs. milk per day.  
 Lady Fawn of St. Anne's, 10920, Victor Hugo's best daughter, 16 lbs. 12 oz. butter 7 days, 47 lbs. 11 oz. 21 days, 2,715 lbs. milk 85 days, when 15 years old.  
 1st of St. Lambert, 5,123, 70 per cent. Victor Hugo.  
 Dam of Oakland Nora, 23 lbs. 5 oz. of butter.  
 Dam of Diana of St. Lamberts, 16 lbs. 8 oz. butter.  
 Hebe of St. Lambert, 5117, a daughter of Victor Hugo, great g. dam of Mary Anne of St. Lambert, 567 lbs. butter 1 year.

To Societies of Agriculture and Farmers desirous to improve their stock, I offer twenty young bulls of various ages issued from daughters and grand daughters of the above famous cows and sired by such great bulls as Romeo of St. Lambert, 10,600 (a most full brother to Mary Anne of St. Lambert.) Victor Hugo of St. Anne's a pure Victor Hugo. Lord Edgar of St. Anne's (a son of the great Jolie of St. Lambert, and Lady Fawn of St. Anne's son a grand and great grand son of Victor Hugo. Victor Hugo 197 has now over 108 descendants that have tested 14 lbs butter per week and over.

For Prices, &c., apply to

**WM. A. REBURN**

STE. ANNE-DE BELLEVUE, P.Q.

# CANADIAN PACIFIC RAILWAY

## MANITOBA and the CANADIAN NORTHWEST

### LANDS AT REDUCED RATES

The Canadian Pacific Railway Company are making a general reduction in the price of all lands listed at \$4.00 per acre and upwards, amounting in most cases to from 25 to 33½ per cent.

**NOW IS THE TIME to secure lands in well settled districts at low figures.**

Only one tenth of purchase money required down, balance, nine annual instalments, interest six per cent. Deferred payments made to fall due after harvest to meet convenience of farmers.

Full information contained in the Canadian Pacific Ry. Company's publications which are sent on application.

Each volume contains numerous illustrations of farming operations, &c., upon the prairies. The readers shall find also a great number of letters from settlers in the country telling of progress, and a good map of the country. Copies will be mailed free to any address upon application to any Agent of the Canadian Pacific Railway, or to

**W. F. EGG,**  
District Passenger Agent,  
MONTREAL.

**L. O. ARMSTRONG,**  
Colonization Agent,  
MONTREAL.

N. B.—The Manitoba corn has just been awarded the first premium at the Millers' International Exhibition, at London, in England.

Do not miss the excursions during harvest time and apply for circulars about particulars.

# ISALEIGH GRANGE FARM

## J. N. GREENSHIELDS

PROPRIETOR,

DANVILLE, P. Q.

Guernsey Cattle,

Shropshire Sheep

AND IMPROVED LARGE

Yorshire Hogs

We breed from none, but the choicest animals and our success in the showing exemplifies the old adage.

### LIKE BEGETS LIKE

Our flock of Shropshires contains over one hundred imported Sheep of the very best blood and of grand individuality. Our herd of Yorkshire contains more English prize winners than any other herd in America.

Orders booked now for Youngs Pigs and Lambs of both Sexes.

ADDRESS:

## J. Y. ORMSBY, N.S.,

MANAGER.

### ISALEIGH GRANGE FARM

DANVILLE, P. Q.



## IMPROVED LARGE YORKSHIRES

### YOUNG PIGS

### FOR SALE FROM IMPROVED STOCK.

## GODFROI BEAUDET, Valley-Field, P. Q.



"EMPIRE STATE" MILK CAN.

## N. F. BEDARD

### Cheese Commission Merchant

and dealer in all sorts of Cheese Factory and Butter supplies.

### 17 William Street,

MONTREAL.

AGENT FOR

## W. W. CHOWN & CO.,

BELLEVILLE, ONT.,

for the sale of the celebrated

## "EMPIRE STATE" MILK CAN

AND FOR

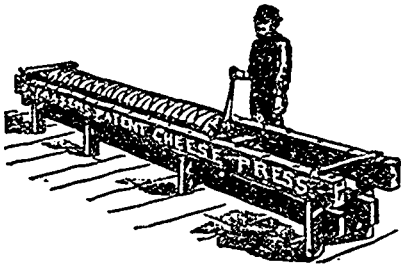
### CHEESE GANG PRESSES AND HOOPS.

ALSO AGENT FOR

## MacPHERSON & SCHELL

ALEXANDRIA, ONT.,

for the sale of Cheese Box Material acknowledged to be the best through all Canada, and bending Machines which work most satisfactorily. Samples of the box material can be seen at the store.



FRASER GANG PRESS.

Mr. N. F. Bédard has always on hand all the necessary supplies and furnishings to start and run a cheese factory with the most improved plant.

For information about the price and other details please correspond with Mr. N. F. Bédard at the above mentioned address.

## APPLE TREES

Grown in the Province of Quebec of the following varieties. Wealthy Duchess, Fameuse, Alexander, Sotts Winter, Longfield, Astrokoff.

All hardy Iron Clads. 3 years old trees at \$4.00 per doz.

Send for circulars.

**J. C STOCKWELL,**  
Danville.

## Registered Shropshire Sheep.

The subscriber has two one year old Rams, twelve Lambs (males and females) and a few old Ewes, all good, and some extra, for sale at reasonable prices.

**SAMUEL N. BLACKWOOD,**  
Breeder of registered Canadian Cattle and Shropshire Sheep,

West Shefford, P. Q.



The only one on the market, which the horses can run without their work being hindered.

It affords us great pleasure to have it known that the improvements brought to our hay press "La Canadienne" have made it superior to all other horizontal presses working in the shape of half a circle. The fuller's course is 33 inches, that is from 6 to 9 inches longer than in any other horizontal press, which gives a wider opening to put the hay in and more speediness. Three men will do more work with our press "La Canadienne" than with any other press in the shape of a half circle, while it is much less tiresome for the horses. The materials employed are of the first quality, with the exception of two pieces of chilled cast iron, all the other parts are steel and malleable cast iron.

We guarantee our press to work at the rate of 10 to 13 tons of hay every day without the horses being tired.

We manufacture four sizes of presses:

14 x 18      16 x 18      16 x 20      16 x 22

We will send this press for trial to any responsible party. Write for our Catalogue and list of prices.



The thrashing machine represented in the above engraving is our vibrating machine. It has a run of 28 inches long with teeth in steel guaranteed so that they can bend without breaking as the norway.

The iron work that support the drills is all in wrought iron which is very advantageous and economical as any blacksmith can make it, so that all long delays are avoided.

The sieve of our vibrating machine is longer and wider than all the other machines of the same kind manufactured in Canada. This new shape facilitates the cleaning of the grain and the sieve is less exposed to spread its contents outside. We give seven passes with this sieve.

The horse power runs on cast iron rails, all the shafts of the bridge are in steel and measure 1/2 of an inch which represents half a line of a larger size than those employed by the other manufactures. All the shafts in the separator, the sieve and the horse power are in steel. We never use any iron shaft. Our machine is acknowledged to be the easiest to run and the one which lasts the longest.

We write for a catalogue and list of prices. We also manufacture a Canvas Separator with improved Railroad Horse Power; Railroad Upright Hay Press; Rod Upright Hay Press; Straw Cutter No. 9, 11, 13; Spring Harrows, 10 teeth; a Washing Machine patented May 1892.

We want active and responsible agents in all the localities where we have none yet. Any farmer shall find it an economy and be certain to have the most improved machine in applying to us. We allow a special discount for orders sent by mail.

# J. B. DORÉ & FILS

MANUFACTURERS

## LAPRAIRIE, QUE.

THE ILLUSTRATED  
Journal of Agriculture

Montreal, September 1, 1893.

Table of Contents

NOTES BY THE WAY :

The plague of flies..... 165  
Tares or lentils..... 169  
Manures for tares..... 165  
The effect of chips..... 169  
Clovers in England..... 16  
Turnips for cows..... 166  
Cabbage growing..... 166  
Neglected opportunities..... 166  
Haystacks..... 166  
Nitrogen and clover..... 167  
Division of pastures..... 167  
Barley..... 167  
Cheese-test at Chicago..... 167  
Columbian Cheese-test..... 167  
Milk in 15 days..... 167  
Montreal Exhibition, 1893..... 167

FARM OPERATIONS FOR SEPT. :

Autumn-cleaning of stables..... 167  
Cattle..... 167  
The flock..... 168  
Swine..... 168  
Fall-wheat..... 168

THE OKA FARM..... 168

THE FLOCK :

Sheep more profitable than cows..... 168  
Notes on sheep-breeding and feeding... 168  
Sheep and dogs..... 169  
Sheep-sales..... 169  
Early rape..... 169  
Rape in Australia..... 169  
Feeding lambs on silage..... 169  
Mutton..... 169  
"Down with the Deadly Dog"..... 169

SWINE :

The pig-hog..... 169  
Clover for pigs..... 170

BEEES :

Cure for bee-diarrhoea..... 170  
Oats for wintering in P. Q..... 170  
Very easy do..... 170

GARDEN OF THE FARM :

The kitchen-garden..... 171  
The fruit-garden..... 171

PLANTS AND FLOWERS :

Window-plants from seed..... 171

AGRICULTURAL INSTRUCTION IN  
PRIMARY SCHOOLS..... 171

THE DAIRY :

M. Marsan's report..... 172  
Beans and linseed for cows..... 172  
The Rev. Messrs Tremblay's report..... 172

CORRESPONDENCE :

Dug on restoring worn-out meadows 173  
Barford on do do..... 173  
Jenner Past on do do..... 173  
Cheese-making in September..... 173  
Cows and beetles..... 173  
Beets and cows..... 173  
Jersey sales..... 173  
Babcock-test..... 174  
Feeding cotton-cake..... 174  
Dairy-test at Chicago..... 174  
Butter making competitions..... 174

THE FARM :

Ploughing..... 175  
Plough-paces..... 175  
Preparation of seed-bed..... 175  
Take clover at its best..... 176  
Wheat yield in the States..... 176  
Clover-culture..... 176

MANURES :

The meaning of analyses of fertilisers... 176  
Waste of manures..... 177

POULTRY :

Gilbert on poultry..... 177  
Exhibition fowls and useful poultry..... 178  
Capon..... 178  
Rain and turkeys..... 178

DOMESTIC ECONOMY :

A cosy corner; Ill..... 179  
Some summer soups..... 179  
Julienne soup, &c..... 179  
Cleaning feathers..... 179  
Pure peach-jelly .. 180  
Canning asparagus..... 180  
Cleanliness..... 180  
Choico dishes of vegetables..... 180  
From F. and H. Cooks..... 180

Notes by the Way.

**THE FLY PLAGUE.**—We hear of a very annoying plague of cattle-flies from different parts of the province: St. Thérèse de Blainville seems to be full of them. They do not appear to pierce the skin, but the poor cows, by reason of their attacks, get no rest, and, consequently, fall off in the yield of milk. Mr. Henry Gray, of the Sanitary Commission, described them to us as being like very small house-flies (*musca domestica*), flitting about in swarms, and attacking the cattle round the head and along the sides. Mr. Gray expressed himself as being puzzled as to what to recommend as a deterrent. He had tried penny-royal and many other things, but without success. Monsieur Manseau, who has just sold his farm at Ste-Anne and is now living at St. Thérèse, finds, he tells us, that coal-oil, smeared on the beast's sides and round the back of the head, keeps the fly at a distance for a day or two; but undiluted kerosene, we should fear to use, as it would probably take the hair off; the best plan would be to make an emulsion of it with water and soap, in the proportion of 2 pints of coal-oil to 1 pint of water and 1 oz. of soap. After thoroughly amalgamating the materials, dilute the mixture with 14 quarts of water, and apply it with a sponge, or with a sprayer, if there is one handy. Carbolic acid and fish-oil may prove effective, but what ever remedy is applied, it will have to be renewed every four or five days. As these flies are evidently doing a very considerable amount of damage to the farmer, we should be glad to hear from any one who has succeeded in the use of any deterrent.

**TARES OR LENTILS.**—The plant, known in England as *tares* or *vetches*, is of two kinds: autumn and spring. The seed of the former is much smaller than the seed of the spring-vetch, and, consequently a less measure is required to the acre; but the crop of autumn tares being much superior in quality as well as quantity to the crop of spring-tares, induces many farmers to sow the autumn kind in the spring in spite of its inferiority as regards rapidity of growth. Lentils, we never saw grown in England, and not often have we met with them in Canada. In fact, except one or two pieces at Chambly, we do not remember to have seen them at all of late years. Of those, we should say, that the bulk of the crop was about half what might be expected from a crop of tares that had been treated in the same way. As far as we know, lentils are grown on the continent of Europe expressly for the seed, of which a soup is made: a very wholesome soup, and fortifying, no doubt, but no more to be compared with our good Canadian "*soupe aux pois*," as regards flavour, than a Richelieu Black-bass is to a Kingston fish of the same kind. As the *wild vetch* grows so luxuriantly in the meadows below Quebec,

there can be no doubt about the success of the *vicia sativa*, if properly managed. It will not grow to a paying crop on worn out land: neither will anything else, for that matter: but on land well cultivated and well manured, we have had as good crops of vetches in this province as any (bar one) we ever grow in England.

The best way to manage a piece of tares seems to us to be as follows:

As tares must be sown as early as possible in the spring, an autumn-ploughing, well laid up in narrow furrows, is absolutely necessary. The best preparation for this is to thoroughly clean a stubble after harvest, as will be hereafter described (see p. 167), and, if there is any manure to be had, a fair dressing of, say, 10 tons to the acre, should be given and ploughed in.

As soon as the land is thoroughly dry in the spring, pass the grubber over the piece along and across, and harrow it well, if you have a drill or a broadcast-sower; if you have neither of these implements, the seed must be put in on the furrow and covered with the harrow, but the crop will not be nearly so good as if treated in the former way.

The quantity of seed, supposing you are sowing the large spring tare, may be about 2½ bushels to the acre, to which you will find it useful to add 1 bushel of Black-Tartar oats, not so much for their value as cattle-food, as for their services in holding up the tares that will cling to their stems. We recommend the above named oats for this purpose, because their straw is stouter and therefore less likely to get laid by storms than the straw of other kinds.

Sow with a drill, if possible, and bury the seed well: 2½ to 3 inches is about the thing. Harrow thoroughly after sowing, make the land as fine as a garden, and roll all down tight. It is no fun mowing tares on a hot day on unrolled land. A second piece should be got ready and sown a fortnight or so after the earlier piece, as tares quickly run through their courses, though not so quickly as rye.

Tares cut before being in bloom are mighty apt to purge horned-cattle and horses, though sheep do not seem to be affected by them; in fact, we have seen sheep, on tares and rape mixed, eat them in quite their infancy without suffering any ill effects from diarrhoea.

When, therefore, the tares are in bloom, they may be cut and carried into the yard, cowhouse, stables, and piggery for they will be welcomed by every description of stock. They do not make milk *ropy*, in spite of what some people have said, so they may be given to milk-cows with impunity. Pigs are very fond of them, and there is rather a curious thing we have observed in their manner of dealing with them: when the plant has stood too long, and become sticky, pigs will chew the stems and, after exhausting the juices, spit the fibrous part out again. We have have seen them do it dozens of times.

Like every other kind of green-meal, tares should be allowed to wilt for 5 or 6 hours after being cut. Thus, if mown in early morning, they will come in handy for the mid-day meal. Treated in this way, there is no fear of their griping the horses, or bloating the horned-stock.

**Manures for tares.**—As tares or vetches are pod-bearing plants, like beans, peas, clover, &c., the use of plaster for them is highly advisable. Wood-ashes, too, with a couple of cwt. of plain superphosphate, will help them very much, and, with due deference to M. Georges Ville, nitrogen will add greatly to the yield of the crop, whether exhibited as sulphate of

ammonia or as nitrate of soda. The following mixture is what we should recommend:

20 bushels of hardwood ashes...	\$2.00
200 lbs. of superphosphate.....	1.20
120 lbs of nitrate of soda, or 100 lbs. of sulphate of ammonia...	3.00
	\$6.20

The ashes we have put at their home—not their selling price; if found too expensive, 200 lbs. of kainit would answer all purposes. The ashes, or the kainit, should be applied in the autumn; the sulphate of ammonia and the superphosphate before the last harrowing; and if the nitrate of soda be used, it will have the most effect if sown on the tares when they are about 3 or 4 inches high.

As fast as the ground is cleared of the crop, the grubber should follow, to break up the surface and expose any root-weeds to the desiccating effects of the sun. When the whole piece is finished, the land should be ploughed, harrowed fine, and from 5 to 7 pounds of rape-seed, sown broadcast and rolled in, will provide pleasant pickings for the sheep in October at a very trifling cost.

We do not make our land yield half of what it would yield, in this quick growing climate, because we will not expend a little labour on a succession of crops.

**THE EFFECTS OF CHIPS.**—During the high-water of last spring, the garden of a friend of the editor's was invaded by a cargo of *chips*, principally pine, which remained after the Ottawa subsided. Our friend's son, a gardener, *s'il en aut*, thinks that if these chips are allowed to rot in heaps and then put on the land, they will have as much effect on the crops as would a dressing of dung. In our opinion, any effect produced thereby would be mechanical, just as is the ploughing in of buckwheat or mustard (not of clover, which is quite a different thing); but there are so many queer things in connection with this point, that we should like to have the views of those who have tried the use of rotten chips or sawdust on their farms. Why do crops grow so luxuriantly on the site of an old wall that has been removed? We really do not know, unless it be that the under-lying soil has produced no plants of any kind for a number of years; and the same thing occurs in the case of a pile of logs or lumber. As for the ground having been in the shade for such or such a time, being the cause of fertility, as was contended for by an enthusiast at a meeting of the Dairymen's Association some 4 or 5 years ago, that theory does not commend itself to our mind. Perhaps Professor Penhallow will kindly enlighten us on the subject.

**CLOVERS IN ENGLAND.**—It is strange that a point of great interest has been almost entirely ignored in English agricultural reports and farm notes during the present season. We refer to the question whether the young clovers are alive in that country, or not. Often there is a doubt on this point while drought lasts, though we believe that on light soils the young plants perished very generally a month or two ago; but now that they have had a fortnight or more of showery weather, farmers may judge whether any vitality remains in the young plants, which were apparently withered by the drought. Often we have seen a good plant come up after rain

where the surface had appeared during drought to be quite bare of clover, the leaves and even the slight stalks having dried off, while the roots retained their vitality. We fear that the area which has come well out of the ordeal this season is a very small one, and that the clover average in England next season will be the shortest known for many years, but at present evidence sufficient to establish a conclusion is lacking; and this is a valid reason why Canadian farmers, who are determined to sell their hay for export, should not be in a hurry to part with it too soon. (1)

**PRICE OF WHEAT IN ENGLAND.**—The Country Gentleman gives "the highest price of England since 1821" as 70 shillings and 8 pence. It should be "the highest average price," for we ourselves sold white wheat, in the fall of 1853, for 84 shillings a quarter. We bought the seed, in 1852, for 36 shillings a quarter. Fortunately for us our wheat-shift that year was all on the chalk part of our farm, except some 12 acres, which was on the gravel. It rained persistently all the autumn, so the heavy-land farmers had to leave their wheats unsown. Hence the marvellous rise in price.

**TARE-HAY.**—We forgot to mention, when speaking of tares or vetches, that if the crop is made into hay, as is sometimes done, it should be cut when in full bloom. Great care should be taken not to move it about when nearly dry. Turn lightly, as we recommending in our last number for clover, and get it into cock as soon as possible. If rain falls on nearly made tare-hay, it is as good (or bad) as spoilt; and as, if this happens, it is sure to be dusty, it is one of the best means of giving horses broken wind—the heaves, as it is called here. When seed is required, the treatment of the crop is just the same as the treatment of pease.

**TURNIPS FOR COWS.**—Dr. Hoskins, the well known editor of the *Vermont Watchman*, relates an experience of his on feeding cows on what he calls English turnips. They were grown for market, but there was no demand for them, which to us seems curious, as a *quickly grown* white-turnip, boiled, thoroughly drained, mashed through a sieve, and seasoned with black-pepper and salt—no butter, please—is, to our taste, one of the most delicious products of the kitchen-garden.

Well, not knowing what use to make with them, Dr. Hoskins thought that the one Jersey cow he kept might as well have them. Beginning with a few, given at milking time, the feeds were gradually enlarged till the cow ate 2 bushels a day as her sole food, from November to February, during which time she supplied the family with all the milk, cream, and butter it required, while, as a noted cattleman and drover remarked when he saw her, "she was good beef too." The turnips were warmed, before being cut up, under the stove, but as Dr. Hoskins says, "on a large scale, they might easily be warmed by steaming. It is the warmth, rather than the cooking, that we think desirable, so it would not take long to prepare a considerable quantity."

At another time, the same cow and two of her heifers were wintered on chaffed corn-fodder and meal moist-

ened in a box with boiling water, but this ration did not seem to do any better than, if as well as, all turnips, for milk and flesh.

The cow had no water, as, of course, with such a feed of turnips, she would not drink. (1) The main point, however in the experience is, that this enormous allowance of turnips did not at all affect the quality of the milk or butter.

We confess we should have feared to give a cow 2 bushels of turnips a day without straw or some dry food. As Dr. Hoskins says in another part of the same paper: We are not sure that it is ever best to feed any kind of live stock for a long time exclusively on a single article of diet. He then proceeds to quote a statement from a correspondent of the "New-England Farmer" to the effect that "it is a fact that English farmers fatten cattle on turnips and straw-chaff." In the North and in Scotland this used to be the case, but no South of England turnip, not even a swede (which is not a turnip), with only straw as dry-fodder, will do more than keep the flesh of a beast on its bones. Formerly, 3 bushels of roots was the common daily ration of a Scotch fattening bullock, and Stephens, in his invaluable "Book of the Farm," gives an instance of a half-starved yearling beast that began by eating the moderate ration of 5 bushels a day! Again, the oatstraw of Scotland is far more nutritious than the same sort of fodder in southern England: why, who can tell?

The moral of all this discursive talk of ours is: turnips, in moderate quantities, may be given with impunity to milch-cows, if they are fed to them at milking time, the digestive powers, probably, carrying off the strong taste of the root before the advent of the next milking time.

**CABBAGE GROWING.**—As it is supposed we are about to carry on, in future, a good deal of winter-dairying, we may be allowed to propose the cultivation on a moderately extensive scale of the cabbage. We rather think it was William Cobbett, the great political writer of the early part of this century, who first bought this plant to the notice of the English farmer. Cobbett was not only a great political writer, but a great and successful farmer as well; working with his own hands from boyhood in the fields of his native Hampshire, and, after his retirement from active service as a sergeant in the army, cultivating a large tract of land—1,500 acres we believe—close to the place when he first saw light; dying in harness as a member of the parliament of the United Kingdom. He had some *wild* ideas, but growing cabbages was not one of them.

The cabbage is a plant peculiarly suited to heavy land. Being raised in seed-beds, the cabbage allows of clay-soils being worked at leisure, after the other cattle- and sheep-crops have been sown, so that the plants can quietly and without hurry be transferred from the seed bed to the field of their future maturation.

In England, cabbages for stock are sown in the latter end of the summer, set out in autumn, and consumed in the spring and early summer; but here we must depend upon spring-sowing, which is not a troublesome task by any means and may be thus conducted:

Select a piece of rich, lightish soil,

(1) With one bushel of turnips and a mixture of bean-meal and crushed linseed the last steeped till it will imbibe no more water, bullocks want no drink.—Ed.

if you have any on the farm: the nearer to the place intended for the cabbage-field the better. If you must sow the seed on heavy land, throw it up into rough blocks in the fall, manuring it well with rotted dung, and leave it so till the advent of spring. When the seed-bed is fit to work after the snow has gone, rake the bed down fine and sow rows 9 inches apart of Drumheads or Savoys: we have always found Savoys keep better in the heap than any other kind. The quantity of seed required to grow plants for an acre of land is from  $\frac{1}{2}$  to  $\frac{3}{4}$  of a pound. As a fair crop of cabbage will weigh from 20 to 40 tons an acre, you can judge of the superficies required for your winter-consumption: a cow will easily eat 30 lbs. a day, so, taking a middling crop at 30 tons an acre, half an acre will last a herd of ten cows for 100 days, i. e., from the middle of October to the end of January, or thereabouts.

**Transplanting cabbage.**—This is done in a very simple manner. Water the seed-bed an hour or so before you begin to draw the plants. The more thoroughly the hoeing between the rows has been done, the more earth will be attached to the roots of the plants. Handle them carefully and do not shake off the adhering earth, if you can help it. The planter should have a steel-shod dibber, made from the handle of an old spade, and should make the hole rather broad than deep.

The land intended for the permanent occupation of the plants should be very heavily manured in drills, after having been thoroughly grubbed, harrowed, and rolled—no plant should be set in loose, unrolled land. The planter, accompanied by a boy with the freshly drawn plants in a wide basket, now makes the holes, inserts a plant, and then, with both hands, presses the earth firmly around it—*very firmly*, for upon this depends greatly whether the plant "takes" or not.

A light dressing of 100 lbs. an acre of nitrate of soda dropped round the roots of the plants will pay.

We have set cabbage plants, in this way, in many a broiling June and July day, and can almost say that we never lost a dozen from failure to root. In fact, on heavy land, we prefer planting in hot weather when the ground is dry, to doing the work when the ground is moist and the pressure makes it *cake* afterwards. Watering the plants after setting, is quite needless, and on heavy soils may be injurious.

To keep cabbages through the winter, the best plan is to pull them with the roots on; lay them head downwards on a dry spot in beds 6 cabbages wide and 3 deep, throwing earth round the outside of the bed, and placing brush on the top of the bed to arrest the snow. Thus treated, we have had them keep fresh and good—particularly the Savoys—till Easter, hardly any of the leaves having rotted.

The cultivation of the plant when it has taken root is the same as for other hood-crops: plenty of horse and hand-hoeing. We forgot to mention that the most productive crop of cabbage we ever grew was set at 24 inches between the drills and 12 inches from plant to plant in the drill. This if, we remember, required 18,000 plants to the acre. Now 4 lbs is but a very moderate weight for a well grown cabbage—many of those I am speaking of had 8 to 10 lbs. of solid heart—and 4 lbs. x 18,000 gives 36 tons. Competent judges put the weight of the crop very much higher than this.

**NEGLECTED OPPORTUNITIES.**—There are plenty of these about, but we

never were more struck with the way in which people neglect opportunities than since we arrived at St.-Anne de Bellevue, where we have been passing the last two weeks.

It was curious enough to see, at Sorel, the thoroughbred Guernsey bull, Rufus, the descendant of the best family of that race, standing idle for three years, though his services were offered at the extremely moderate tariff of one dollar a cow: he was sold at last, when only four years old, to the butcher, as no one would buy him as a stock bull. But it is still more strange to see here, with Sir John Abbott's (1) herd of Guernseys at one end of the parish, and Mr. Roburn's herd of Jerseys at the other end, that, although to my knowledge these two herds, than which nothing superior can be found in their native islands, have been established here for at least 12 years, they have impressed hardly the slightest mark of their presence upon the general run of cattle in the neighbourhood.

After a pretty attentive observation of the stock in the pastures alongside of both the G. T. R. and the C. P. R., we can hardly say that we have seen more than two cows or heifers that present indubitable signs of being descended from either of these superb herds.

Mr. Reford, the well known shipping agent, of Montreal, is building an extensive barn, cowhouse, and stabling, which, we hear, he is intending to fill with a selection from the best breeds of stock. Perhaps, he will prove such a benefactor to his country as to import a small herd of *true dairy-short-horns*, the style of cows that furnish the milkmen of London, Birmingham, and other large English towns with their supplies. As we have often remarked—times out of number, indeed—, a herd of these cattle and a flock of Hampshire-down sheep, would, or rather ought to, make an amazing difference in the herds and flocks of the country in which they may be located. But, it is to be feared that, even if such sheep and cattle should find their way into this neighbourhood, the farmers of the district would still neglect their opportunities.

**HAYSTACKS.**—We have often wished to see a real haystack again, and, last week, our eyes were blessed with the sight of three of them, all on the same farm, close to Lake-side. But such stock; they were built as if the main object of the builder had been to get as much hay exposed to the air and sun as possible. In the three stacks there may have been 5 tons of hay; they were circular in form, and each had a cloth of some kind—new cloths, too—over it. The three put together would still have had far less outside, and if they had been well pulled after sinking, the waste would have been very trifling. In the best hay-making district of England, that district extending within a radius of 40 miles from London, as a centre, when a stack of hay—generally from 25 to 100 or 120 tons—has had time to sink, which it will do to extent of from 20 to 30 inches, and when the whole is pretty firmly consolidated, the loose hay of the exterior is forcibly pulled out by the hand all round the stack, and, when finished, it will easily be conceived that neither wind, rain, nor sun can have any effect of penetration; consequently, the outside of the stack is little if at all inferior to the inside: there is absolutely no waste. Whereas, in tiny stacks, like those at Lake-side, the hay lies so loose all round that

(1) To be seen at the Montreal fair.

from 6 to 10 inches of the outside is worth nothing.

There has been, this year again, a vast quantity of a most bounteous crop of grass ruined by the practice of allowing it to stand too long before being mown. On the 1st August, we saw fields of clover lying flat on their bellies that were fit to cut on the 1st of July. Timothy, that should have been mown by the 10th July, is still standing as we write (August 3rd); it is as brown as a berry, and, except as regards the seed, which is nearly ready to sholl out, pretty nearly all the nutriment has vanished from it: *what was digestible has become indigestible.*

**NITROGEN AND CLOVER.**—As most of our readers may have observed, an idea has become prevalent among some of the mere theoretical teachers of the day that clover and other leguminous plants are indifferent to the presence of nitrogen in manure. It is high time that some practical experiments on a large scale should settle this question, and it would be well if these experiments, when tried, were conducted by a practical man. We should very much like to see two lots of manure, from stock fed in the ordinary way, treated differently; the one thoroughly fermented, under cover of course, and, so to speak, as nearly spoilt as possible, i. e., deprived of most of the nitrogen it contains. The other lot to be carefully treated, to preserve the nitrogen, and both to be applied to a piece of clover of the same quality, and growing on land of the same texture and composition. Which lot of manure, all other things being equal, would produce the heavier crop of clover? Our own experience leads us to think that the one from which the nitrogen has *not* been worked out would prove the superior. The potash and phosphoric acid would of course be equal in quantity in both lots. To be satisfactory, this experiment should be repeated at least four times, and the results carefully compared. Will any one try it? The manure should be applied in the fall, and bush- or chain-harrowed in as soon as the snow has gone.

**A DEXTER COW.**—Mr. Martin Sutton, of the great Reading seed-firm, has a *Dexter* cow that is a cow indeed. She weighs 762 lbs. and during the period between April 1st, 1892, and March 31st, 1893, she gave 10,852 lbs. of milk that is, 29½ lbs. a day throughout the year. Fancy a cow averaging three imperial gallons a day for a whole twelvemonth! Supposing that it took 20 lbs. of such a cow's milk to make a pound of butter; and *Dexters* give very rich milk: this would make her butter yield equal to 542½ lbs. a year, worth at least \$137.00, to say nothing of the 10,000 lbs., or so, of skimmilk.

And when this cow has finished her period of lactation, if she is a fair specimen of her race she will not cost much to fit her for the block; for the *Dexters*, unlike their relations the *Kerries*, are more like "little short-horns" than any other cattle, and fatten easily and economically.

The year's milk weighed 14 times as much as the cow. We should like to know the rations fed to produce this almost miraculous flow of milk.

**DIVISION OF PASTURES.**—We are glad to find that we are not alone in crying out against the folly of turning a small number of stock into a large

pasture and keeping them there without a change for months at a time. Dr. Hoskins says, in the "Vermont Watchman":

"It is not good economy to turn thirty or forty head of cows into a thirty-acre pasture to roam about all day and not get more than enough feed to make up for the muscular exertion."

If the 30 acre pasture were divided into 3 parts of 10 acres each, and *fed down regularly*, instead of 40 cows it would keep at least 50, and the pasture would be all better for the close feeding; few things in this province strike an eye accustomed to the systematic grazing practice abroad than the careless way in which pasturing is conducted here. Unsightly patches of grasses allowed to go to seed; the droppings of the cattle never knocked about; cows allowed to roam about, after harvest, wherever they choose, and kept congregated at the gate nearest their quarters in the late fall, till the ground all round is poached into the likeness of a fallow-field, these are only a few of the sins against good management that the careful observer may note. One would really think farmers had too much land, by the way they treat their pastures.

**BARLEY.**—The first crop in the district to be harvested was, as usual, a piece of barley, on the upland of one of Messrs. Dawes' farms, at Lachine, on the 1st of August.

**THE CHEESE TEST AT CHICAGO.**—The Jerseys have, as will be seen by the annexed report, beaten both *Shorthorns* and *Guernseys* in the cheese test at the Great Fair. Analysing the figures of the milk-yield, we find, to our astonishment that the:

J Jerseys produced <i>per diem</i> .	35 lbs.
Shorthorns " " "	32 "
Guernseys " " "	29 "

What sort of *Shorthorns* must these have been to have given only 3.2 gallons of milk a day on what one is bound to suppose was the best of food? They could not, certainly, have been *Dairy-Shorthorns*. (1)

**THE COLUMBIAN CHEESE TEST.**

Chicago, Ills., August 3. — The Department of Agriculture at the World's Fair have announced the decision in the Columbian cheese test. This test was one of the most complete, the most carefully conducted, and most thorough that has ever been made. The *J Jerseys*, *Guernseys*, and *Shorthorns* completed each with 25 cows. The result it as follows:

**MILK IN 15 DAYS.**

	lbs.
J Jerseys .....	13,290
Guernseys.....	10,938
Short-horns.....	12,186

**CHEESE MADE IN 15 DAYS.**

	lbs.
J Jerseys .....	1,451
Guernseys .....	1,137
Short-horns .....	1,070

**VALUE OF CHEESE.**

J Jerseys .....	\$193.98
Guernsey .....	135.92
Short-horns .....	140.14

(1) Last month, the *Dairy-Shorthorns* at the *Thring*, England, show, gave from 52 lbs to 62 lbs. a day.—Ed.

The award for the best bred cow was given to the Jersey, "Ida Merigold" owned by C. A. Sweet, of Buffalo N. Y.

What is the meaning of the last paragraph?

**THE MONTREAL EXHIBITION OF 1893.**

—It is hoped that our great annual show at Montreal will not be injured by the attraction of the World's Fair. Mr. Stevenson, the obliging secretary of the Company, seems full of spirits, and the arrangements are going in most satisfactorily.

"One new feature," says Mr. Stevenson, "we are endeavoring to introduce. We wish to make it a more distinctively provincial exhibition than ever before, and to this end I have written to the Government to ask the agricultural society of every county to send us an exhibit of each county's grain, woods and grasses, as well as cattle and sheep. This would interest everyone, as they could compare the resources and results of every distinct county in the province with the others. As the Government controls the grants to these societies, there is no reason why they should not ask them to do this. It would be a much better method of spending the public money than by frittering it away on small exhibitions, which in many instances are absolute farces. Have one big exhibition every year in Montreal, at which each county could see how the others are progressing and do away with these petty local shows."

Special prizes will be given for "Homing Pigeons," in a "flight competition" from Brockville, and for Incubators and Brooders.

The Ladies' Department has been thoroughly re-organised under the superintendence of the Ladies' Committee.

We must express our regret that the notices of the above and various other improvements reached us too late for insertion in the August No. of the *Journal*.

**Farm Operations -- For September.**

Those who wish to save themselves work in the busy months of spring, will find that one of the best means to that end consists in what we call in England, "AUTUMN-CLEANING OF STUBBLES."

*Couch-grass*, and other root weeds, can be more easily destroyed at this time of year, and that for two reasons: first, their roots are as yet feeble, owing to the shade they have passed their lives in since the grain began to run up; secondly, because the sun, which is generally pretty powerful in this province during the greater part of September, will soon dry up the weeds, if they are properly exposed to its rays, and sometimes save the trouble of burning them or of carting them off the land.

The implements required for the autumn-cleaning of stubbles are:

- A good grubber or cultivator;
- Good harrows;
- A roller;
- A horse-rake.

The plough we consider to be the worst possible implement for the first part of this operation: as the furrows will not probably be more than 10 inches wide, a long root of *couch-grass*, running, as these roots often do, to a length of from 15 to 25

inches, will necessarily be out by the coulter in two or more pieces; whereas, the grubber, a non-cutting implement, rather drags the roots out of the land, and leaves them on the surface ready, if necessary, to be collected by the harrows and horse-rake.

The teeth of the grubber should be of two kinds: one of narrow points, the other of broader, flat plates with sharp cutting edges. As the roots of *couch*, at this season of the year, are seldom found to have penetrated more deeply into the soil than, say, 2 inches, the broad plates or points may be used to begin the work. If a shower or two of rain has fallen, this will not be found to be very hard work for 2 horses of real power; but, if the ground is as hard as the road from dry weather (and perhaps previous bad farming and neglect of manuring,) a third horse will be needed. The *Coleman drag-harrow*, a cut of which was given at p.—of the *Journal* for—, is about the most perfect combination of *broad-share* and grubber ever invented. The *Ducie-drag*, the *Bentall-scarifier*, and the *American spring-tooth*, are all useful in their places, but they all require power, and cannot be worked by a pair of ponies.

Whatever be the implement used, it should be worked across and along the piece. Where the land is heavy and ploughed into narrow ridges, the plough must be used, in spite of its faults, to throw a slice out of each side of the open furrows between the ridges, and the water-furrows should be carefully attended to by a man, with a fork, for along them it will generally be found that the *couch-grass* has grown profusely.

After the grubbing, the harrows may go to work, and, between the harrowings, if the land has broken up in largish clods, the roller should be used to pulverise them. The number of harrowings and rollings must depend upon the state of the land, but, if the sun be powerful, and the land dry, probably 3 strokes will be sufficient.

The horse rake may follow the rolling and harrowing, if there is much *couch-grass*, and the stuff collected in rows can be burnt or carried off the field, if thoroughly dried to death, to form the bottoms of mixens or manure-heaps. On heavy land, containing a good deal of *couch*, we should be tempted to gather it without shaking the clods at all with the harrows, &c., and burn as much of the soil as possible. No dressing that can be given to heavy land is half so beneficial as a good lot of burnt clay; it acts principally as a mechanical agent, but its powers of converting inert vegetable matter into active force, in some way or other that no investigator has as yet been able to ascertain, must be considerable, as may be seen by examining the site of burnt heaps of any material, on which grain has been sown; in such spots, the growth will be found so luxuriant that it seldom fails to go down before harvest. The whole face of the poor heavy land in the province might be changed by the torrefaction of 20 or 50 loads an acre; but, unfortunately, there is some skill needed, and the process is not understood here.

**CATTLE.**—The harvest, except pease, being now over in most of the western part of the province, the cattle can enjoy plenty of change of pasture. Do not let the cows fall off in their milk for want of a feed of fodder-maize, or other greenmeat. It is far easier to keep up the flow of milk than to

restore it when fallen off. We cannot too strongly recommend the housing of milch cows and foals at night towards the end of this month.

**THE FLOCK.**—Sheep should be dipped again about the middle of September. Mr. Gray, of St. Lawrence Main street, will supply the materials, which can be safely and economically used with hot or cold water. (1) No one who has not tried dipping can form any idea of the comfort it affords to the sheep. Where vetches have been followed by rape, the flock will be ready for them by the end of the month, as a white frost on clover-leas will often set the whole lot of them scouring. They will need some dry food when on the rape: clover-hay chaffed and *gabourage*—oats and pease mixed—will be found about the best of the home grown materials.

A fashion of shearing the lambs before the winter, has taken hold of some American farmers. We have never tried the plan, but, on first principles, decidedly object to it. If lambs are allowed, as they ought to be, plenty of exercise in the open air during the winter, their woollen jackets will not be found to be overpoweringly warm for them.

**SWINE.**—The young pigs of the spring should now be pushed along Barley- or corn meal with a moderate allowance of pease, and any skim-milk or whey that is at hand, will make the best pork. The price of barrelled-pork at Chicago has fallen from \$17.50 to \$12.50, and that of course will influence greatly the price here. The former was an unnaturally high price, considering the value of grain, and the present price is unnaturally low. So much for gambling on the Chicago market: it never did any one any good yet, and never will. A great chance is open to any one who will send *dairy-fed* pork to the West-end Montreal butchers: the pigs must be well-bred, and not exceed 80 lbs. in weight.

Great care should be taken of litters of pigs dropped this month if frost sets in early. A pig of 2 months old that gets chilled never recovers from the attack.

**FALL-WHEAT.**—If any one has a piece of land cleared of early potatoes, sweet-corn, or other market-crops, he might try a sowing of fall-wheat on it, provided it is so situated that the water of the thawed snow does not lodge there.

After carting off potato-haulm, corn-stalks, &c., a good grubbing should be given, 6 pecks an acre sown broadcast, and the seed covered in with a narrow furrow, not more than 4 inches and not less than 3 inches deep. The open furrow will need no attention of course, as the land is not intended to be harrowed or touched in any way after the seed is ploughed in, but the water-furrows must be carefully drawn, and not restricted in number. Harrowing and subsequent rolling in the spring will be all that is needed. Of course, cattle must be kept off the piece. We think this fall-sowing should be completed by the 8th of September. The Campbells, of Saint Hilaire, grew it every year, and Mr. James Drummond, of Montreal, does so still.

(1) Butts' is as good as any.—Ed.

### THE OKA FARM.

This institution seems to be flourishing. When we recollect what a mass of bush and stones it was ten years or so ago, we can feel that credit is due—great credit, too—to the industrious friars that have converted so much of it into useful, arable and meadow land. The following description, extracted from the "Montreal Star," is evidently a translation from the French, and of doubtful accuracy: "cabbages of Siam" we have altered to *sabbes*, and made one or two other changes.

"Dom Antoine, the Abbott of the Monastery of La Trappe, at Oka, furnishes some interesting facts regarding the large farm owned and worked by the members of the Order. Its area is 1000 acres, of which 258 acres are wooded, 464 acres being opened up, 248 acres in cultivation, and 35 acres in orchards and gardens. What is now producing, was a forest ten years ago. The stones removed from the land have been used to erect a three story monastery with basement, stables and a fence round the cultivated parts. The walls vary from five to seven feet in width, and from four to eight feet in height. The farm is thus sown: Twenty acres in wheat, 13 acres in oats, 20 acres in barley, 4 acres in buckwheat, 5½ cabbages for cows, 10 corn for ensilage, 10 potatoes, 1 carrots, 2 turnips, 3 swedes, 1 beets, 5 beans, 7 timothy and 22 various Hay fields will be opened up later on. From 100 to 150 head of cattle, producing 20,000 pounds of butter, 30 to 40 horses and 200 hogs are now on the farm. Some 1250 tons of manure is secured, making some 30 tons of manure per acre of manured land. The manure is always mixed with phosphate, and nitrate is also employed. The crop of wheat is about 20 bushels per acre and the oats vary from 35 to 40 crops. The crop is better than any on the farms around. Each cow gives some 200 lbs. of butter per year. The creamery each year sends out from 40,000 to 45,000 lbs. of butter, some of which is made from milk supplied by the neighbors. The orchards are thus made up: 1000 apple trees, 1200 small fruit trees, 2000 vines, a quarter of an acre of strawberries and the same area in asparagus. The growing trees are: 10,000 apple trees of three years; 25,000 of two years; 60,000 of one year, and 45,000 of this year. Several young men are to be taught practical farming.

### The Flock.

#### SHEEP MORE PROFITABLE THAN COWS.

**EDS. COUNTRY GENTLEMAN.**—The discrepant statement of John G. Ickis, p. 32, F. Powell and G. F. C. p. 92, on comparative profits of cows and sheep, are so mixed, indefinite and confusing, that no one can arrive at any definite conclusion by studying and comparing them. I think a plain simple statement can be made that will elucidate the problem so perspicuously that the aid of "advanced farm book-keeping" will not be required in its solution.

It is generally agreed that it costs about the same to maintain any certain number of pounds of carcass of a species of herbivorous animals as another. Nine hundred pounds is about the average weight of cows, and 90 pounds the average weight of grade Merino sheep, hence what will

sustain one cow will sustain ten sheep. Mr. Powell says that it does not cost him over \$25 a year to feed a cow. That is less than 50 cents a week. It looks very small; but it must be remembered that Mr. P. resides in South Carolina, where most of the land is "as cheap as beef at a cent a pound," and where animals graze most of the year. On farms in the North a cow's yearly keep costs nearer \$50 than \$25. But I will grant his low price for keep, for it would have to be equally low for sheep.

Mr. Powell also says he gets from \$50 to \$60 a year per cow for butter alone. This is a much larger average than prevails elsewhere, but I will grant the highest figure; still, he would have evinced the practice of better book-keeping if he had told in exact figures what his butter really did come to. "The figures" are required in good farming at the present time. Mr. P. did not state the value of his cows. Those making \$60 worth of butter are certainly worth \$40, and this sum will exactly purchase ten sheep such as I have described; so this makes the investment even, as is also the maintenance. There remains the receipts from products to be compared.

The two nearest flockmasters to me, who understand and practise farm book-keeping, have flocks such as described. No extra care was bestowed. The animals were kept as farmers usually keep sheep. The average receipts per head of one, for wool and lambs, was \$6.68, and of the other, \$6.74. Adding these and dividing by 2, we get the average of \$6.71. Multiply this by 10—the number of sheep—and the result is \$67.10, or \$7.10 more than the income from the cow, and on the same investment and same expense for feed. The skim-milk of the cow is worth something, but the extra \$7.10 more than makes up for that.

As these writers all seem to figure on the basis of 50 cows, I will extend my calculation to that point. The product of the cows is \$3,000, and of the 500 sheep \$3,355.50—a difference of \$355.50 in favor of the sheep. It is fair to assume that this balance equals the value of the skim-milk. Investment in cows and sheep and their maintenance being equal, these two factors can be eliminated from the problem at once. It is in the requisite labor where sheep excel most. One shepherd can care for them alone two-thirds of the year, and work at other employment (1) enough to pay an assistant for the other third. If the cows are milked 300 days of the year, it equals milking one cow 10,000 times. How much is that worth? There must be at least four milkers for that number of cows. (2) Then what is it worth to do the skimming, churning, and cleansing of the milk vessels and utensils every day? And what is it worth to convey the butter to market or the railroad station from once to thrice a week? All these involve an immense amount of labor during the year, besides investments in dairy utensils and dairy house, and wear and tear of team, harness and vehicle.

Against all this there is expense of washing and shearing the sheep. The wool can be taken to market in two or three wagonloads and the lambs walk there. If lambs are kept five or six months, something should be charged for their pasturage, but they get the most of their sustenance from their dams and consume very little

(1) A real shepherd would not fancy doing other work.—Ed.

(2) Our tenants in Gloucestershire allow ten to twelve cows to each milker.—Ed.

grass. But with sheep one can do far better if he will grow hothouse lambs. These are grown in winter and sold when under two months of age. Nineteen of such, killed and wrapped up, lay on our railroad station platform, Jan. 30, last, that sold for \$10 a head. These cost no more to grow than six-months' lambs grown in the old way.

Sheep have another value superior to cows, and that is their better manure, however unaccountable it may be. I have been almost faithless on this point, because I could not see why there should be a difference when the two species of animals eat practically the same things; but I have to believe my eyes when I see so many fields and whole farms increase in fertility by sheep husbandry, and scarcely any by ordinary dairying; and then having the reason for it made plain by a recent English analysis of the two manures, I must believe it to be true. The analysis is of a ton of clear dung and a ton of the liquid excretion of cattle and of sheep similarly fed. The most valuable ingredients are given in pounds: Dung of cattle—nitrogen, 5.8; phosphoric acid, 3.4; potash, 2; liquid manure—nitrogen, 11.6 (phosphoric acid not given); potash, 9.8. Sheep dung—nitrogen, 11; phosphoric acid 6.2; potash, 3; liquid—nitrogen, 39; potash, 45.2. From this it will be seen that together the solid and liquid dropping of sheep contain over three times as much of these valuable fertilisers as the droppings of cattle. As ten sheep eat as much as a cow, they ought to void as much. It now remains for some of the experiment stations to ascertain and report how this "milk gets into the cocoonut."

GALEN WILSON.

Tompkins County, N. Y.

#### NOTES ON SHEEP FEEDING AND BREEDING.

Editor of the FARMER'S ADVOCATE:

Your valuable journal recently contained a letter on sheep breeding by "Practical," of Virton, Man. He says he thinks the *ADVOCATE* should be in the hands of every farmer; in that I quite agree with him, but with some of his remarks I do not concur. In the first place he says half-threshed pea straw is the best feed for sheep. I consider there would be a great waste of peas in the straw, and do not think it necessary to afford as much grain as that. For instance, ten acres of good pea straw (hand threshed), with a few roots and a very small quantity of grain, should feed twenty sheep for five months, and yield two hundred and fifty bushels of peas. This half-threshed, with the ground grain he speaks of, would be too expensive feeding for profit. In another place he says he selected the largest ewe lambs for breeding. In that he was right as far as he went, but he should take shape into consideration, for a large sheep if not well formed will not take the eye of the judges, and should not be bred from. Now, with regard to the twin lambs, the condition of the ewes when served will have more to do with the twins than either the ram or the ewes being twins. (1) He says he expects to get three or four lambs from each ewe every year. I think after he has had the three or four lambs with each ewe a few times he will be satisfied with two—at least I am—or even one, rather than three or four.

R. HONEY, Warkworth, Ont.

(1) Quite right.—Ed.

**SHEEP AND DOGS.**—A CORRESPONDENT remarks that we seem determined to keep the sheep and dog question before the people. Well, we do. It is one of the big leaks that need to be stopped. We notice that many of the leading journals all over the country are becoming interested in the subject. The *New York Times*, remarking that the United States takes the second place in the world in wool production—the Argentine Republic being first—says: One of the most glaring of all wrongs, to all concerned is that the shepherd must keep his flock in his own fields and prevent them from going at large over his neighbor's fields and gardens, but a dog, a costly and useless animal, may prowl around anywhere it will, and no man has any power to prevent it. This fact explains why this country is not the first by a long way in the wool product of the world, why the lands of New England are bare and deserted to such an extent, and why in the genial climate of the South, where land may be had for the annual interest of the cost of a farm in the North and West, and feeding on pasture is practicable for nine-tenths or the whole of the year, flocks are so rarely seen."—*Vt. Watchman*.

**SHEEP-SALE.**—An important and extensive shipment of Shropshire sheep was made last week by Messrs. Lythall and Walters, of Birmingham per the Beaver Line steamer, *Lake Winnipeg*, on behalf of Mr. G. E. Breck, of Michigan, U. S. A. The shipment comprised 100 grand shearing ewes from the flock of Mr. A. S. Berry, the winner of the gold medal at the R. A. S. E. and the Mansell challenge cup at the Shropshire and West Midland this year, and a selection of rams from this gentleman's flock; some show and other ewes from Mr. H. P. Ryland; two excellent show ewes from Sir J. Pulley, while the remaining ewes came from Mr. Henry Bradburne and Mr. D. Buttar, rams also being secured from the latter gentleman's flock. Twenty-five rams came from Mr. Bowen-Jones's flock, and a fine lot of shearing rams were despatched from Mr. T. Glover's and Mr. C. Pratt's and from some of the leading breeders in Staffordshire and Shropshire. A prize Southdown ram was included, also a splendid selection of Hampshire rams, ram and ewe lambs, shearing and older ewes from the most noted exhibitors of this breed. Messrs. Lythall and Walters have also made three consignments of Shropshire rams to Germany; and a further lot, together with three Large-White boars, including the first-prize animal at the Bath and West of England Show, are leaving by this week's steamer.

#### EARLY RAPE.

Although rape is not exactly a root crop, it is so similarly used that it may well occupy ground devoted to this purpose. We should think anyone fortunate who already has a fair acreage of this valuable fodder crop in the ground. Rape is hardier than turnips or swedes, and is better fitted for struggling against a period of dry weather such as we are at present experiencing. The cultivation of rape is practically the same as for turnips. It requires a well-worked, clean, and enriched seed-bed, with a sufficient amount of moisture to produce germination. The seed has the advantage of being cheap, and the crop possesses

the merit of being of high nutrient value. The rapid growth of rape and its power of growing again after close feeding are great inducements to its cultivation. It is one of the best sheep foods existing, and is, in fact, so nutritious that it can scarcely be equalled by any other fodder crop. It is well adapted for clay as well as for chalky land, and for peaty soil it is much better than either swedes or turnips. The accounts given of the growth of rape in the fens of Lincolnshire might almost seem incredible to farmers of ordinary land. We understand that it there produces an almost impassable mass of herbage, through which the sheep must eat their way out. We suppose that this must refer to giant rape rather than to the dwarf Essex variety usually grown, but in descriptions of the farming of Lincolnshire we have read somewhat astounding statements as to the vigorous growth of this plant.—*Ed.*

**RAPE IN AUSTRALIA.**—An Australian Wool-grower raises 200 acres of rape for his sheep and he speaks in the highest terms of its value. He fattens 20 sheep per acre on his rape fields. For four months of the year the average rape crop will fatten—not merely keep alive, but actually top up—from 12 to 15 sheep per acre. Of course its value as a fodder crop is confined to a few months in the year, but during that time it will give a greater return as sheep food than any other plant. It possesses in a marvellous degree the property of fattening sheep in a short time, thus giving the farmer an opportunity of turning his money over quickly. About three pounds of seed are sown per acre. It is a good practice to sow grass seed with rape, but the rape must be stocked before it grows high.

**FEEDING SILAGE TO LAMBS.** I. P. ROBERTSON and G. C. WATSON, (*New-York Cornell Sta. Bul. No. 36, Dec., 1892, pp. 247-249.*)

*Synopsis.*—In a comparison of silage with mixed hay for lambs 4 pounds of silage took the place of about 1 pound of hay and proved cheaper at current prices than hay.

Two lots of five grade Shropshire lambs about eight months old were fed from December 8 to April 27 to compare silage with mixed hay, mostly clover. Lot 1 was given silage hay, and a grain ration composed of one part of linseed meal, two parts of cotton-seed meal, and four parts of wheat bran, by weight; and lot 2 was given hay with the same grain ration as lot 1. The five lambs on silage made a total gain of 135½ pounds and those on dry food 124 pounds. The total amount of dry matter consumed in the food by the two lots was practically the same. The lot on dry food drank 555 pounds more water than the one on silage, but considering the water in the food the silage lot consumed 324 pounds more water than the lot fed wholly on dry food. The 1,116 pounds of silage eaten took the place of 306 pounds of hay and proved the cheaper food in this experiment.

To carry the comparison still further, assuming as a basis a yield of 2 tons of hay per acre, would require as an equivalent a yield of less than 5 tons of silage per acre. As a matter of fact our land that produces 2 tons of hay yield from 12 to 16 tons of silage per acre. Or the comparison may be made in still another way: If

hay costs \$10 per ton the silage in this experiment had a feeding value of more than \$2.50 per ton.

#### MUTTON.

"What are the features of the Shropshires?"

"Early maturity, fine flavored meat, with lean and fat in proper proportion, good, medium-length wool, and a reasonably heavy fleece. My breeding ewes average 11 pounds of wool (1) The animals are very hardy and have a strong, thrifty constitution. They thrive in almost any climate. I seldom have an animal off its feed. They are always ready for a ration. The average weight of the best Shropshires ewes in breeding condition is 185 pounds, and 20 to 40 pounds more may be put on when fitted for show. We are not a mutton-eating people, for the reason that we don't know what good mutton is, and we won't know until these mutton breeds get to be so numerous that we can afford to sell them for mutton purposes. At present they are mostly reserved for breeding purposes, and not used for mutton except as accidents or culling demand. If all the Shropshires in England were brought to this country and distributed among the farmers for breeding purposes, it would be several years before the supply of mutton could meet the demand. Half-bloods of this breed are quoted higher, both for feeding and when fattened, than common sheep, because they make greater gains on a given quantity of food, and there is a growing demand for a better quality of mutton. Half-blood lambs four months old sold this spring for \$7.87 per head in Buffalo. These were raised by a thorough farmer of our county, who says half was clear profit. The common sheep of the future on high-prices lands will be grades produced by putting a good ram of some of the best English mutton breeds upon the common sheep of the present. Wool has already taken second place. We can get a good profit from mutton sheep and sell the wool at the same price per pound that we get for mutton."—*R. N. Yorker.*

#### DOWN WITH THE DEADLY DOG

About two miles from a certain town in this State lives a farmer who owns a flock of very fine Cotswold sheep. In the said town lives a gentleman who is quite a "sport," and owns a varied assortment of fighting, hunting and other dogs, all of which are very fond of raw lamb chops and leg of mutton. One day the farmer met the "sport" on the road and greeting him pleasantly, remarked:

"Jenks, your dogs and my sheep seem to be getting mighty friendly of late. I believe they lie down together in my pasture every night—my sheep inside of your dogs!"

"Do you reckon?" said Jenks slowly, closing one eye and cocking the other.

"I do," said the farmer stroking his beard thoughtfully.

"Well," chipped Jenks cheerfully, "my dogs allus was noted for their friendly disposition and hospitality in that respect they're jest like myself—I won't charge your sheep anything for storage, lodging or entertainment! Get up, Dolly!" And now they don't speak as they pass by.

Isn't it a little singular that the farmer is compelled by law to put a fence

(1) Unwashed, of course.—*Ed.*

about his sheep and keep them on his own land, while the dogs of such chaps as Jenks are allowed by law to roam at large day and night? But as the farmers who raise sheep are vastly outnumbered by the farmers who raise dogs and whose sentiments are: "The man wot kicks my dog kicks me!" it's not likely that any law abridging the privilege of the sanguinary cur to wander abroad at his own sweet will and devour the gentle lambkin will be enacted very soon.

"I have a piece of woodland over there that would make splendid sheep pasture if I could use it for that purpose," said a farmer to me one day.

"And why can't you use it?" I asked.

"Too many mean dogs prowling around. They'd eat up a flock of sheep over there in less than a week!"

And when I called at his home, two fierce dogs came forth and threatened to rend me in twain. They were his own especial pets.

Driving up to the house of another farmer who keeps a flock of sheep, I was greeted by three tough-looking mongrels.

"You are well supplied with dogs," I said as he came out and heaved a cudgel at them.

"Yaas," he drawled, "I am just now. But only one of them belongs to me. That big one is Ben's, and that brown cuss is one I gave away about a month ago, but he's found the way back. I'll have to write to the man I gave him to, or give him to somebody else. He's no account only to bark at people and eat eggs!"

"I should think you would be afraid they'd get after your sheep."

"Oh, there's no danger. They're used to 'em. Dog are not half so bad on sheep as some people try to make us believe."

At the proper time, however, he presented a bill "for four sheep killed by dogs," and I suppose it was duly allowed.

Christian County, Ill.

R. N. Yorker.

#### Swine.

##### THE BACON HOG.

There is a chance to learn something all the time, even about those things with which we deem ourselves the most familiar. Now about the most familiar thing to the American farmer is the American hog. But there are a good many things to be learned about pork making yet. We grow corn so easily, and feed it so freely and wastefully, and the hog eats it so greedily, and we can make pork so unthinkingly, that it is no wonder we have channelled that rut so deeply we can hardly see over the sides.

But there are other ideas about hogs besides corn and lard, and it may be well to begin to entertain them. The report of the Department of Agriculture for March 1893, contains the following interesting item about the bacon hog:

It is a most noteworthy fact, well worth the consideration of Americans, that the hog products that command the highest price in English markets, come from countries that are not noted for the production of corn, namely: England, Ireland, and Denmark. The quality and consequent high price of English, Irish, and Danish bacon, which at wholesale now sells at from nineteen to twenty-one cents per



pound, is due, first, to the feeding of the hog, and second, to the manner of curing. The best quality of bacon is produced by feeding barley, rye, wheat and pease, boiled potatoes, skimmed milk, butter milk and whey. The hogs should range in weight from 180 to 220 pounds, and should be long and lean, with well developed hams, thick, straight bellies, and the fat on the back should not exceed  $1\frac{1}{2}$  inch in thickness. The shoulders, sides, and hams are cured in one piece. The over-fat, corn fed hog does not make the finest bacon and does not bring the highest price.

By attention to these requisites the Danish farmers have increased their sales of bacon in England from 4,000,000 pounds in 1881 to about 200,000,000 pounds in 1892, and the price has steadily increased. The bacon hog is best produced in conjunction with the dairy.

In coroboration of the foregoing we will that state the Canadian Packing Company has lately been organized by English capital at London, Ont. The purpose is to take advantage of the great dairy production of Ontario and induce the Canadian farmers to produce by the aid of skim milk, peas, barley, &c., a hog that shall rival the finest bacon hogs of Europe. This company argue that in the district where the most cows are kept there should the finest bacon hogs be found. This would be true if two things existed. (1) If the milk of the cows was devoted to butter making rather than cheese making, thereby ensuring plenty of skim milk for feeding purposes. (2) If the farmers rightly understand the great value of skim milk as a food for young hogs, and will adapt themselves to a change in their methods of pork raising. To this end it will be necessary to produce more clover, peas, barley, and grains of that sort.

There is no reason whatever why the great dairy districts of Illinois, Wisconsin and Iowa, as well as in eastern states, should not produce the finest bacon hog in the world. The farmers in these sections have everything at their hand to do this work with

There is much more money in it from a dairy standpoint than turning the skim milk into poor skim cheese or worse yet, fraudulent "filled" cheese. Some enterprising packing company should take the lead in this matter, and start the dairy farmers in the line of producing a distinctive bacon hog

*Hoard's Dairyman*

### CHESHIRE PIGS

Thoughts of Cheshire should not be confined to its cheese or to its peculiar race of humorous cats. Cheshire appears to have been the home of pigs of abnormally large size at one time, although the gradual improvement of live stock has modified the dimensions and raised the quality of these useful adjuncts to the dairy. We extract the following account from Culley's "Observations on Live Stock," which shows that the pigs of modern times are small when contrasted with those of last century. — On Monday, January 24th, 1774, a pig, fed by Mr. Joseph Lawton, of Cheshire, was killed, which measured 3 yards 8 inches from the nose to the end of the tail, and in height was 4 ft.  $5\frac{1}{2}$  in. (2) When alive it weighed 12 cwt. 2 qrs. 10 lbs.; when killed and dressed it weighed

1216 lbs. This pig was killed by James Washington, butcher, Congleton, Cheshire. Some of the splendid pigs to be exhibited, of the Large Yorkshire breed, may equal, although they are scarcely likely to exceed, this tremendous record of 128 stone, London dead weight. The fact may not be worth recording, but it serves to show that Cheshire must have been favoured in possessing a breed of pigs (for this could scarcely have been a solitary example) of very large size. What would Mr. Harris, of Calne, in Wiltshire, say to the arrival of a truck-load of such mammoths, and what price per score would he be disposed to give for animals so far exceeding his modest demand for baconers of 8 to 9 score—mere pigmies.

We cannot allow our minds to rest upon Cheshire without thinking of other agricultural features which have rendered the county famous. The Combermere estate, which we regret to see is offered for sale, was one of the first which derived advantage from the use of bones as a manure. A cheese district would naturally tend to become exhausted of bone earth (phosphates) in the soil. It is, therefore, not surprising that worn out pastures should derive great benefit from dressings of the very material which they had been called upon to supply. Hence the dairy lands of Cheshire, which had been yielding cheese and bone as well as flesh for generations, were much benefited by the applications of half-inch bones, and the practice of using them, and, later, superphosphate of lime, appears to have originated in the county of Cheshire. (1)

### Bees.

#### CURE FOR BEE-DIARRHŒA, WINTERING BEES, &c.

Written for the *American Bee Journal*

BY "MONTREAL SUBSCRIBER."

As some body in the *American Bee Journal* inquires about a remedy for bee-diarrhœa, I beg to state some facts of past experience.

Last year, in February, I noticed that some of my bees in the cellar were suffering badly from diarrhœa; the weather being not favorable for a cleansing flight (which is the best of all remedies), I simply cleaned the bottom-boards, which are moveable, and placed under the frames a piece of brown paper on which a few drops of spirits of peppermint had been previously spilled. That seemed to stop the disease for two or three weeks, when I had to repeat the same process. I should like to see others try it next winter, and report. I should think that peppermint, when has the effect of helping digestion in human beings, might have the same good result on the bowels of the bees.

#### OUTSIDE WINTERING IN LOWER CANADA.

Last fall, seeing that my cellar is altogether too cold in winter, I resolved to try the "summer stands" system, and notwithstanding the extreme and continuous cold of this past winter, I succeeded to the best; for, the 10 colonies I had in November, 1892, are to-day (April 23rd) all in excellent condition. Of course, I was fully prepared for it, my hives (sim-

licity stylo) being lodged in large, square wooden boxes, well packed with straw some 10 inches all around, the winter stores also were abundant, and the colonies strong.

The first general cleansing flight took place as late as March 8, 1893, when I closely examined the 10 colonies. Of course the bottom boards were covered about  $\frac{1}{2}$  inch with dead bees, which is not surprising after such a long confinement (since Nov. 17th). But 5 colonies were pretty heavy still with stores, the 5 others more or less short of stores, and all with plenty bees. To the weaker ones I gave that day two thin cakes of maple sugar between the frames, which I found all gone on April 8th, when the bees had their second general cleansing flight.

One of the 10 colonies was a nucleus of Italian bees in five Langstroth frames with plenty of stores; it went through the winter O. K., and to my surprise, on March 8th, it was still heavy with stores. I really should think that with outside wintering, bees properly prepared, would consume less than in the cellar. Now, last year I had 6 colonies in the cellar, and besides suffering with diarrhœa, in the spring they were all short of stores. But the reason is perhaps that my cellar is too cold for wintering bees.

#### VERY EASY AND COMFORTABLE OUTSIDE WINTERING OF BEES.

Here is my method of wintering bees on the summer stands, each hive is at all times provided with a large platform, say 3 x 4 feet, raised from the ground about 4 inches in front, and 6 inches in the rear, so as to make a gentle slope. On this large platform rests the hive on its moveable bottom-board, also raised about 3 inches from the platform—a perfect ventilation and neatness, as you may see.

Now when cold weather is coming on each hive is well packed with chaff or straw in a wooden case made of two stories, with a movable cover made tight against rain or thawing, by galvanised or painted iron.

Mark that the whole case is large enough to allow 6 or 7 inches of straw packing on the sides, and 10 or 12 on top of the hive. (It also receives a coat of coal tar on the outside only.) Mark also that the same case rests exactly on the edge of the large summer stand platform, so that the underside may be allowed free circulation of air whenever desirable.

Now, to make it still better rat or mice proof, only a narrow entrance is provided on the outer case, say  $\frac{1}{2}$  x 4 inches; also a sort of wooden bridge is provided for the bees between the two entrances (the entrance of the case and that of the hive). Should any rats make their appearance, "Rough on Rats" will soon get rid of them—it is the best article I ever saw for the purpose.

But you might think that with such a packing the bees are left very little ventilation, that they are in danger of smothering if the entrance becomes clogged with dead bees, or shut up with ice. The danger is averted in this way: The bottom-board is at all times provided with two or four holes covered with perforated tin, and the large platform underneath is not airtight, so that bees can get enough ventilation from the holes of the bottom board.

But as I had some trouble the past winter in cleaning the bottom-boards, I intend to improve my wintering process in this way: I shall raise the hive 3 inches above the bottom-board

by means of a frame 3 x 2 inches, on which the hive will rest. The front side of that frame will be a moveable board only  $\frac{1}{4}$  inch thick, having the usual hive entrance; that board being made fast to the hive by means of the straw packed against it. The bottom-board inside the hive will have a piece of brown or blotting paper to receive dead bees and any dirt falling from the frames. The lower story of the outer case will also have part of the front moveable, say 3 feet by 6 to 7 inches in width.

Now here is the beauty of the whole arrangement: Whenever a fine day comes, allowing a general cleansing flight of the bees, or whenever you want to clean the bottom-boards, you first put aside the movable part of the front case, then draw the packing out of the way, and lastly the moveable board of the aforesaid frame on which the hive is standing. Now gently draw the brown or blotting paper of the bottom-board (it will be more or less dirty), and immediately replace it with a neat and dry one, on which you may spill a few drops of peppermint. If necessary you may also feed the bees under the frames, with the ordinary cautions not to daub the bees. If the weather is very fine, you may also uncover the outer cases, so that in a few hours all the colonies will get a thorough cleaning and drying, with but very little trouble for the bee-keeper.

I tried, last year, in the cellar the brown paper and the movable-board system, and it proved a success. I don't see why I could not use it in connection with the wintering case system.

### GARDEN OF THE FARM.

**KITCHEN GARDEN.**—It is now time to prepare trenches for planting out the first crop of celery. These should be at least 4 feet apart, and for an early crop we always prefer single rows, but if double rows are grown the trenches should be 5 feet apart. This is a gross feeder, and should be given plenty of rotten manure—in fact, it will grow strongest if planted in manure, only it must be well rotted before planting time. In transplanting this, care is required to lift the plants with as many roots and soil as possible, as when given a check of this time it will often run to seed. Celery is a hardy plant, so that the young seedlings may be placed out of doors thus early, only, as they have been grown in heat, they require to be well hardened off by giving them air freely in the frames for a week or ten days before planting out. For an early supply we always prefer growing a white variety, Sandringham White being one of the best, the white kinds, as a rule, do not keep so well in the winter, but they are quicker to blanch, hence they are best for a very early supply. Cauliflowers that were planted out as before directed should be kept watered, and also mulched with rotten manure. Another sowing of peas should be made now of a mid-season variety. If ground is extremely dry, it is advisable to water the rows before sowing the seed, and also to tramp the soil down very firm over the seed, and place a few evergreen branches on the rows until the peas begin to grow. French beans may now be sown in the open air for the first crop, a warm, sheltered border should be selected, and only a few rows sown at first, as these are very tender, and often get damaged by frost early in the season.

(1) Specially pease.—Ed.

(2) i. e. 13 hands,  $1\frac{1}{2}$  in, or higher than most ponies.—Ed.

(1) Stuff, bones were used for turnips in Scotland long before.—Ed.

**FRUIT GARDEN.**—Owing to the long continuance of dry weather the gooseberry caterpillar is sure to appear earlier than usual, at it should be at once destroyed or it will soon do much damage to the bushes. Heliothrips powder dusted over the affected parts is an effectual remedy. Fresh-slaked lime dusted all over the bushes will also save the bushes. Whichever plan is adopted, the bushes should be syringed over with clean water a day or two afterwards to clean the berries.

J. SMITH.

Montmore, April 26th. (1)

## PLANTS AND FLOWERS.

### WINDOW PLANTS FROM SEED.

Nearly all this class of plants can be raised from seed; a packet of seed that will raise a number of plants costs less than half the price of a single plant. Gloxinia bulbs of named sorts cost 40c apiece; unnamed sorts 25c, while that "quarter" will buy a packet of mixed seed which should give a choice assortment of bulbs worth several dollars and that should bloom the first year from seed. What is true of gloxinias is also true of cinerarias, cyclamen, abutilon and begonias.

The choicest seed will cost 50c per packet. Ask one or two friends to join in buying and then divide the packet, or buy it alone, raise your plants and sell any you do not want, four or five plants sold at one-fourth the price florists ask will pay for the seed, and a fine collection will be had that has cost only the trouble of raising. Use boxes 3 in. deep for seed beds, have the soil fine and light, press down evenly, sow the seed and cover with some light springy covering, either sifted leaf mold, finely cut moss or mellow soil. Once planted, they must be as carefully tended; while the soil should not be soaking wet, it should never be allowed to get dry, for one thorough drying will spoil them. Cover the boxes with glass, lifting for ventilation occasionally, and as long as moisture gathers freely on it no water will be needed. Water carefully to avoid washing the seeds out of place and loosening fine roots that have taken hold in the soil.

When the little plants come through the soil, they should have a strong light but not enough to scald them. When the plants have made their second pair of true leaves, transplant into boxes similar to the first ones, by using boxes, the plants take up less space and are more easily cared for.

Tuberous-rooted begonias are single and double, and in all sorts of markings and colors. They are summer-blooming bulbs, and in a semi-shady place where they are sheltered from strong winds are good bedding plants, but their chief value is for pot culture. If the seed is sown early they should bloom the first summer. When the foliage shows by turning yellow that it wants to rest, withhold water and let the bulb remain in the pot until spring, when repot in good, rich earth as soon as it shows signs of starting into life. There is no way of telling when this will be for it depends on how early in the fall it began to rest and on the size and vigor of the bulb, but when ready to grow, it will start, whether it is in January or April. Do not keep them close to glass, as they will sunburn easily.

(1) Of course, in this part of the world, for April read May.—Ed.

Gloxinias require the same treatment as the tuberous begonias and make a grand companion for them.

The cyclamen requires similar care in the main points, but it is a winter bloomer and rests during the summer months. The bulbs do better if only the base is covered, as they are very apt to rot if entirely covered. The foliage is as beautiful as the flowers, so is valuable for decorative purposes. Water should not be allowed to touch the foliage—in fact, all three of these bulbs do best if watered from below. The cineraria is not a bulbous root, but the plants should be kept in a cool and rather shady place during summer, and in winter given just such light and treatment as a blooming geranium requires. These plants are free bloomers and the flowers are very showy, coming in late winter at a time when flowers are usually scarce. Smilax is universally used in all sorts of decorations. The bulbs like nearly all others require a resting time and will show when they need it, but while growing give them a light, sunny place and green string to climb on, and keep free from dust.

## AGRICULTURAL INSTRUCTION

### IN THE PRIMARY SCHOOLS.

By THE REV. T. MONTMINY.

For several years, I have been specially occupied, during the few moments of leisure left me from my clerical duties, with the means to be taken to improve the condition of the farmer; starting from this principle, that, if it be true that poverty frequently engenders vice, it is equally true that a moderate degree of comfort renders the observance of the laws of morality comparatively easy.

One of the surest means of improving the condition of the farmer, is to teach him the rules that preside over the art of agriculture, those inflexible principles that must be observed, if good farming is to be practised, those operations that must absolutely be performed, if farming is to be a profitable business. Instruction such as this, one is the most frequently called upon to give to farmers who have been practising their art for many years, in all the errors of routine, and of a method that may have been correct formerly, but that has become wrong on account of changes that have taken place in the condition of agriculture.

This class of farmers it is impossible to make follow a regular course of agriculture in a school. We must then strive to reach them by other means, and one of the best of these means is the instruction given in the Farmers' Clubs. Wherefore, I have devoted much of my energy to the promotion of the work of these clubs. I am satisfied with this simple allusion to the part these societies play in the practical teaching of agriculture, as I know that several ardent apostles of clubs will demonstrate their value before you.

By the side of this class of farmers which must necessarily receive its instruction in agriculture through the clubs, there is another which may be the more easily reached, since we have it already under our hands while it is being educated. I mean the children of our farmers. This class which, now, thanks to the development that educa-

(1) In *cyclamen* the accent is on the penult, in *clematis* on the first syllable.—Ed.

tion has received in our province, attends school as a whole, to learn reading, writing, and arithmetic; why, then, should we not take hold of them, and teach them, at the same time, the elements of agriculture?

This reformation in primary education is the more necessary in that the child, about this time, will generally come under an influence extremely to be dreaded, one that is likely to render him averse to farm-work.

What, indeed, too often happens in farmer's families? We hear the father complaining of his condition; he condemns it in the hearing of his children, and shows his preference for other occupations. Fancying that he alone suffers and works, he believes himself the most wretched of men, because he wears home-spun instead of broad-cloth. If one of his children at school shows the least signs of cleverness, he immediately dreams of some other occupation for him, as if his, the father's own, were only a refuge for those destitute of any other. "As to that child," says he, "he won't make a farmer; he is much too sharp for that. I'll try and make of him a priest or a doctor, an advocate or a notary; anyhow, he shall be a gentleman."

And, with this idea in his head, the father will sometimes spoil the vocation of his child by sending him to college; he will make his family submit to great privations, run himself into debt, and rob his other children of their rightful inheritance.

Is it wonderful, after this, that the child, hearing such language in his home, should feel disgust and contempt for the father's business? And, again, when he hears tales told before him of the high wages gained by those who work in the factories of our towns and in the States, how easily does he allow himself to be deceived! Thus, reared in contempt of the occupation of the farmers, the child is ready to be anything he is asked to be, except a tiller of the soil. It is therefore necessary, that at any price we must labour, on the one hand, to take from the head of the family the idea that he is a pariah, the refuse of society, that his business of a farmer is a low one, and does not pay; and, on the other, make the true value of, and the taste for, agriculture enter early into the youthful mind of the son.

This will not hinder him, if he feels a more special bent towards another career, and his father be able to allow him to follow it, from being free to do so; at least, all injustice will have ceased as regards the occupation of agriculture. But we must not forget a recent observation of the Hon. G. Nantel:

"If a well constituted society must form by vigorous studies those of the rising generation who are destined to compose what may be called the governing body of the nation, it is no less important that our rural population be imbued with the idea that it is, perhaps, but a few who need the higher education, and that on the other hand, as the greater number of country bred children are destined to become farmers or artisans, the primary education should be especially devoted to the needs of those classes."

For, it is indeed indisputable that the great majority of our rural children are not likely to attend the courses in our colleges. Why, then, do we not apply the primary education to their needs, as you have just heard it said?

Doubtless, if, in the primary school, the child be taught the first principles of agriculture, by his teachers trying to make him like it, and letting him understand, at an early age, the

operations of his father on the land, he will at once be interested in them. As the knowledge gained at school increases, so much the more will the interest of the child in his father's practical work increase. He will therefore be gaining information simultaneously in theory at school and in practice at home. And having left school, he will gladly pursue his course of theoretical and practical agriculture, and be a ready-made adopter for the Farmers' Clubs. He will have become the type of the perfect farmer, that is, of the farmer who has thoroughly learnt his business.

Let us now consider the best means of realising this type; one of the grandest and noblest the human race can produce. First, in order to educate the farmer's son, we must learn what we have to teach him; so the master himself must begin by finding out the subjects he has to impart a knowledge of to the pupil; and this gives us, as the first article of our programme of agricultural instruction, a course of agriculture in the normal schools and colleges where our teachers learn their duties. When once they have been instructed in the branch of their curriculum, the ease with which agricultural education can be applied to our schools is self-evident. It is clear that, in the short time allowed me for the development of my ideas, I cannot enter into the details of a course of agriculture suited to our schools. I will rest satisfied with pointing out rapidly the chief articles of the programme I propose, which seem to fall naturally into the following shape:

- 1st.—General notions of agriculture;
- 2nd.—The study of the soil of the farm;
- 3rd.—The study of the plants of the farm;
- 4th.—The study of the live stock of the farm;
- 5th.—The study of the food of plants;
- 6.—The study of the food of man and beast.

Rough as is the outline as I present it to you, still it contains all the main lines of the programme of agricultural education. They will be found, entire or in part, in a vast number of works written by men who have dealt with this important subject of farm instruction in schools; some of them wrote a considerable time ago, such as, to mention our countrymen first, Messrs. Perreault, Larue, Landry, Leclerc, and our brothers, Frenchmen of France, MM. Dumas, Gamard, Barbier, Barot, Greff, Leroy, and many others.

The amount of instruction of this sort must necessarily be modified in accordance with the capacity of the pupils destined to receive it. This education superior in the colleges and normal schools, where it will be connected with the study of physics, chemistry and mechanics, will become secondary in the academies and model schools, and must be abridged into primary teaching in the elementary schools.

And to make this programme more complete, let us, for a moment, figure to ourselves the possibility of seeing opened in our university courses of agricultural and rural economy, when our future statesmen and legislators shall be taught the grand primordial principles that govern the social economy of the nations. Then indeed we should see a perfect system, as perfect, that is, as anything can be in this world; agricultural education reaching every class of society that needs its aid, each class, according to its wants, being benefited.

To supply the demands of this programme, the manuals of elementary treatises on farming which we now possess, good enough in their way, would be insufficient, so I propose that government be requested to have these elementary works revised, or to have new ones written that will supply our present demands. At the same time I trust government will be prayed to organise a system of agricultural instruction, not only for primary schools, but for the establishments of the superior education, in order that every one should be taught the things pertaining to agriculture, in so far as his position may require him to understand them.

The programme I have just sketched would also comprise the teaching of appropriate notions of agriculture in our convents. If these houses are left out of the scheme, farming will suffer. It is absolutely necessary that she, who is called upon to become the companion and helpmate of the farmer, possess the same ideas and almost the same information as he, and, besides, she has duties, particularly the care of the dairy, which are peculiarly her own. She must, too, early acquire the taste and the knowledge suited to her husband's position. Instruction in the home-industries of the farm, then, should, in our programme, take the place of instruction in music and fancy work.

What an example have ladies of the Ursuline Convent at Roberval lately given us in this connection. There, they are not satisfied with theory, practice is equally studied, and this is what is needed if we would arrive at weighty results.

I conclude, gentlemen, by proposing for your approval, as a corollary of the ideas I have been laying before you, two resolutions to be submitted to the Congress assembled in general session.

**FIRST RESOLUTION.**—That the Provincial Government be respectfully requested to take the necessary steps to inaugurate a system of agricultural instruction in our elementary and model schools, our academies and colleges, by first of all causing the publication of a graded course of agriculture for the use of these institutions, and then making such amendments in the school law as shall be needed to render this system easily introduced into every part of the province.

**SECOND RESOLUTION.**—That our universities be respectfully requested to study the means and to seek for the necessary elements to create chairs of agriculture and rural economy, whence public courses shall be gratuitously given.

(From the French.)

**The Dairy.**

**L'ASSOMPTION AGRICULTURAL SCHOOL.**

*Report on the use of Beans and Linseed as food for Milch-cows.*

For several important reasons, the experiments asked for by the Department of Agriculture on this matter could not be begun until December 2th, 1892.

For the purposes of the experiment, 10 cows were selected and divided into two groups of 5 each, group 1, and group 2.

The duration of the experiment embraced 3 periods.

During the first period, both groups were fed alike on the food they had

been previously receiving: 25 lbs. of maize silage, 9 lbs. of hay chaff and 3 lbs. of straw chaff, 3 lbs. of wheat-bran and 3 lbs. of wheat middlings, each head *per diem*, given at 2 meals, night and morning, and, at noon, 10 lbs. of long hay or 10 lbs. of long straw alternately, i.e., every other day.

The manager thinks that the alternation of the two last mentioned fodders, of unequal nutritive value, has the effect of exciting the appetite of the cattle.

The chaffed fodder, the silage, and the bran were mixed, moistened with cold water, and given to the cows after steeping for 72 hours to allow the mixture to begin to ferment.

The water being cold and the silage half-frozen, necessitated that lapse of time to allow the fodder to warm up a little by its fermentation.

During the 2nd period, group No. 1 received, in addition to the above ration, 3 quarts of boiled beans and 3 lbs. of linseed scalded.

During the 3rd period, group No. 2 received the beans and linseed, and group No. 1 only the common ration described above.

The rations, except the beans and linseed, were not weighed regularly every day, but simply measured. (1)

We were not in a position to carry out this investigation with all desirable precision, so the increase of the milk in group No. 2, during the 2nd period, raises a suspicion that there was some alteration in the quantity or proportion of the food.

I intend to renew this experiment next winter.

The following table shows the results obtained by the investigation:

at their respective establishments on the use of beans and linseed in the feeding of milchcows. We hasten to publish these reports, regretting to mention they conducted, last winter, see that the results of the experiments were by no means conclusive. We hope that another series of experiments, to be instituted next year, will prove more satisfactory.

Sto-Anne's School of Agriculture  
July 20th, 1893.

To Mr. JENNER FUST,  
Montreal.

Sir,

The Department of Agriculture has requested me to send you the report of an experiment made by me with beans and linseed as food for milchcows. I send the report herewith. It is not very favourable to the effects of the beans and linseed, but it is perfectly trustworthy. I will make fresh experiments next year.

Believe me,

Truly yours,

L. O. TREMBLAY, Prte., Dir.

School of Agriculture,  
Sto. Anne de la Pocatière,  
July 21st, 1893.

In the month of December last, I conducted an experiment on the use of beans and linseed as food for milchcows. I selected two groups of 5 cows each due to calve in April, and giving, on the 1st December, within a pound of the same quantity of milk a day. To one of these groups, I gave, in addition to their ordinary ration, during 15 days, a feed of cooked beans with linseed—(a quart of beans and  $\frac{1}{2}$  of a quart of linseed,) daily to each cow.

It will be seen by this table that there was an additional yield of milk of 171 lbs. from the cows that received beans and linseed.

This result does not certainly show in favour of the use of the beans and linseed as food for cattle, as the cost was too great. Still, I am of opinion that their use would be more effective on cows receiving a less abundant ordinary ration than our cows are accustomed to get. This was, for each cow, at that time, 8 lbs. of good hay in the morning;  $\frac{3}{4}$  bushel of swedes at noon; and, at night, alternately, straw and salted hay. (1)

I am told that a smaller quantity of beans and linseed would have given as good a result: it may be so.

As for the quantity of butter made from an equal quantity of milk from each group, I had butter made separately twice, and found no difference at all. Nevertheless, I intend to substitute fresh experiments before deciding on the expediency of using linseed and beans for the economical production of milk.

Your obedient servant,

L. O. TREMBLAY, Prte., Dir.

The great variation in the yield of milk on different days in the figures given by Monsieur Tremblay must strike every one who reads them. On December 9th, the 5 cows constituting the beans and linseed group gave 95 lbs. of milk = 19 lbs. each, and on the 12th 77 $\frac{1}{2}$  lbs. = 15 $\frac{1}{2}$  each. As the cows seem from the Director's letter to have been all in calf, this difference cannot be accounted for by one or more of them having been "in season," and we are led to suppose that some

TABLE SHOWING THE RESULTS OF THE EXPERIMENT.

PERIODS OF THE EXPERIMENT.	Group of 5 cows.	Total milk in lbs.	Quantities of milk per diem for each cow, in lbs.	Average percentage of fat by the Babcock.	Total fat, in lbs.	Total butter obtainable, in lbs.	Butter obtainable daily.	Daily increase of butter due to the beans and linseed.
1st Period from 26th Dec. 1892 to 7th Jan., inclusive, 1893 = 13 days	No 1	503	7.78	3.815	19,189	22.05	1.69	
	No 2	444	6.830	3.88	17,927	19.81	1.52	
	Difference.....		59	0.908	In fav. of No. 2 0.065	1,962	2.24	0.17
2nd Period from 8th to the 23th January, inclusive, = 16 days	No 1	785	9.81	3.62	28.42	32.68	2.04	0.35 lbs.
	No 2	581	7.26	3.26	18.94	21.78	1.36	
	Difference.....		204	2.55	0.36	9.48	10.90	0.68
3rd Period from 24th Jan. to the 8th Feb., inclusive, = 16 days.....	No 1	584	7.30	4.200	24,530	28.19	1.76	0.000 lbs.
	No 2	516	6.45	3.675	18,963	21.80	1.36	
	Difference.....		68	0.85	0.525	5,567	6.39	0.40

We must congratulate Monsieur Marsan on the very effective way in which the above table is drawn up. It is clearness itself. We're sorry to see that, for some reason or other, the results of this experiment, too, are not satisfactory.

**BEANS AND LINSEED FOR MILCH-COWS.**

The Rev. Mossiro Tremblay, Principal of the Agricultural school at Sto. Anne la Pocatière, and monsieur Marsan, of the Agricultural school at l'Assomption, have been good enough to forward us reports of the experi-

(1) But if the groups got 3 quarts of beans, that part of the ration can hardly be said to be weighed. Bn.

The result was as follows.

	GROUP EATING BEANS AND LINSEED.	GROUP ON ORDINARY RATION.
1st Dec.	76 lbs. of milk	78 $\frac{1}{2}$ lbs. of milk
2	" 83	75
3	" 87	77 $\frac{1}{2}$
4	" 79 $\frac{1}{2}$	79
5	" 84	75
6	" 86 $\frac{1}{2}$	76
7	" 88	73
8	" 84 $\frac{1}{2}$	72 $\frac{1}{2}$
9	" 95	68
10	" 90	72
11	" 87	71
12	" 77 $\frac{1}{2}$	72
13	" 85	68 $\frac{1}{2}$
14	" 83	69
15	" 84	72
	1270	1099
	1099	
	171	

irregularity of feeding might have taken place. The sudden jump up, too, from 76 lbs. on the 1st to 87 lbs. on the 3rd, followed by a fall to 72 $\frac{1}{2}$  lbs. on the 4th, is difficult to account for.

The cows during the experiment seem to have given a daily average of:

**GROUP ON BEANS AND LINSEED.**      **GROUP ON ORDINARY RATION.**

17 lbs. each.      14 $\frac{1}{2}$  lbs. each.  
1 gallon and 2 $\frac{1}{10}$  1 gallon and 5 $\frac{1}{10}$ :  
very moderate yields indeed for cows having still more than 5 months to go before calving.

M. Tremblay doubts if the extra ration pays; he would find, we think,

(1) Does "foin sale" means salted hay, or hay from the salt-marshes? Ed.

peas quite as effective as beans, and much cheaper. As the linseed does not appear to have been crushed, the probability is that at least  $\frac{1}{2}$  of it passed through the animals undigested. This we have explained at least twenty times, since we first had the honour of editing this periodical. If M. Tremblay would try the following ration another year for his milk-cows, we think he would be as well satisfied with it as we have always been:

2 bushels of oats .....	70
4 " of peas.....	264
1 $\frac{1}{2}$ " of linseed.....	81
	415

If the Sto. Anno's school has no linseed crusher, as is probable, this mixture must be ground, between the mill stones, fine enough to crack every grain of linseed. It is for this purpose that we have added the oats, as peas and linseed alone are by no means easy to grind. Six pounds a cow per diem of the above mixture, added to the ordinary ration, ought to make a considerable difference in the quality and yield of milk.

M. Tremblay would do well, in case he attempts another like experiment, to follow Monsieur Marsan's plan of alternating the extra ration as he explains in the report annexed, and to weigh the extra food instead of measuring it.

### Correspondence.

The Manor—Murray Bay.

To ED. A. BARNARD ESQ,  
Sec. C. of Agr.

JULY 25th, 1893.

DEAR SIR,

I, last year, ploughed up about 12 acres of meadow, to get rid of couch-grass, daisies, &c., which formed the principal part of its yield.

I ploughed and cross ploughed it three times, each ploughing followed by the spring and spike-harrows; then sowed wheat, with timothy and clover. The yield of wheat was very good both in quantity and quality, but neither the timothy nor the clover germinated. This I did not know, until I noticed this summer that the field contained nothing but weeds.

One of my farmers now advises me to sow it again as soon as I get my hay in, which I expect, bar rain, will be this week: to sow timothy and clover simply, and to pass the spring-tooth harrow over it afterwards. On getting this advice, I looked over the *Journal d'Agriculture* for some advice on the subject, and found an article, from your pen, in the August No. 1891, saying that the land should be carefully ploughed if timothy and clover are to be sown in August.

Might I ask you to favour me with some advice as to what I had better do; for this I should be very thankful.

Yours truly,

W. E. DUGGAN.

P. S. Might I also ask, how much timothy, red-clover, and alsike I ought to sow to the acre?

A subsequent letter from Mr. Duggan to the editor states that the timothy and clover, on the removal of the wheat, suddenly sprang into life and are flourishing.

27th July, 1893.

W. C. DUGGAN, ESQUIRE,  
The Manor,  
Murray Bay, Que.

Dear Sir,

Your previous seeding of timothy and clover having failed and a quantity of weeds taken full possession of the soil, once more, I would strongly advise to pass the spring harrow, both ways in dry weather from this hence as long as the warm weather continues. This will give the field a semi-fallow. I would then give it towards the fall a slight liming, say from 6 to 8 bushels of quick lime per acre and as soon as the snow covers the ground well, or towards spring, before the snow has uncovered the field I would sow somewhere about ten quarts of timothy, eight pounds of red clover and two pounds of alsike. If eventually for pasture, add 2 lbs. of white Dutch clover. This is heavy seeding no doubt, but by no means too heavy where the soil is weedy.

Wishing you every success,  
I remain, yours truly,  
ED. A. BARNARD

P. S.—In order to secure all the light possible on this important subject, I forward your letter and my answer to A. R. Jenner Fust, Esq., Editor of our English *Journal*

As Mr. Barnard has paid me the compliment of asking me for my opinion concerning his advice to Mr. Duggan on the questions contained in his letter, I beg to say in reply that I consider Mr. Barnard's counsels to be perfectly correct except in one or two trifling points:

1. I should, if the land be heavy, double the dose of lime.
2. I should prefer the spring as the season for sowing the grass-seeds.
3. When the seeds are up and well-rooted, I should roll them with a heavy roller.
4. If one-half of the timothy were replaced by 1 bushel of orchard-grass, it would be better for the pasture.

As no mention is made in either of the above letters of the quality of the soil, I give these few observations rather haphazardly—if there be such a word.

ARTHUR R. JENNER FUST.

#### OFFICE OF THE DAIRY COMMISSIONER.

CENTRAL EXPERIMENTAL FARM.

DEPARTMENT OF AGRICULTURE,

OTTAWA, CANADA.

#### Notes for Cheesemakers for September.

By JAS. W. ROBERTSON,  
Dairy Commissioner.

1. Invite your patrons to co-operate with you in the efforts to bring the September cheese from your factory to the very front at the World's Columbian Exposition.
2. Urge them to see that the cows have an abundant supply of succulent, wholesome, nutritious feed, and access to pure water. When salt is not provided where the cows can reach it every day, they will drink foul and stagnant water if they can get it. Plenty of salt and prohibition from

impure water will effect a double cure.

3. All the vessels used in the handling of milk should be cleaned thoroughly immediately after their use. A washing in tepid or cold water, to which has been added a little soda, and a subsequent scalding with boiling water, will prepare them for airing, when they may remain perfectly sweet.

4. Cows should be milked *with dry hands*, and only after the udders have been washed clean.

5. Tin pails only should be used.

6. All milk should be strained immediately after it is drawn.

7. Milking should be done, and milk should be kept only in a place where the surrounding air is pure. Otherwise the presence of the tainting odours will injure the milk.

8. All milk should be *aired* immediately after it has been strained. The treatment is equally beneficial to the evening and morning messes of the milk.

9. Some of the qualities that are expected and desirable in the cheese of September make are—

- (1) Rich, clean, creamy flavour;
- (2) Solid, firm, buttery body;
- (3) Fine, silky flaky texture;
- (4) Bright, uniform colour;
- (5) Attractive, neat, symmetrical appearance.

10. Use from 3 to 3 $\frac{1}{2}$  lb. of salt per 1,000 lb. of milk.

11. Put two bandages on each cheese, and finish them on the ends in such a manner that the outside one may be stripped off before the cheeses are put on exhibition.

12. In other respects follow the *Bulletin of Notes for Cheese Makers for August*, from which I take the following extracts:—

Patrons are more likely during this month than at any other time to forget to provide salt for their cows, and to neglect to supply an abundance of pure cold water. Cool evenings are no excuse for the neglect of the aeration of the milk. It should be most thoroughly aired immediately after it is strained.

The making of cheese for exhibitions is usually undertaken during the two first weeks of this month. Send a circular to every patron making mention of those matters which are referred to in this Bulletin, and inviting their co-operation that they may aid you in the manufacture of cheese fine enough for exhibition and prize-taking.

*Making the Cheese.*—When the evenings are cool and the milk needs ripening, don't fail to leave it in the vat until it reaches the proper state of maturity before the rennet is added.

Use enough rennet to coagulate mature milk to a state fit for cutting in forty minutes when set at 88° Fahr. Dilute the rennet extract to the extent of one pailful of water for every vatful of milk, and then mix it thoroughly by vigorous, rapid stirring.

After the whey is drawn, air the curd thoroughly and make provision for keeping it warm. Let the temperature be kept above 94°. Frequent turning and aeration will facilitate the development of acid, providing the temperature is maintained.

After the curd-cutter has been used, the curd should be stirred and aired for fifteen or twenty minutes before the application of salt. The curd should be put in the hoops within twenty minutes after the salt has been mixed in.

Pressure in the hoops should be applied very gradually. The cheeses

should be bandaged neatly when they are turned in the hoops, within two hours after they are put in the presses. They should again be turned in the hoops some time in the following morning.

Endeavour to get every one who sends milk to your factory, or who is concerned in its management, to try to bring it to the very front in point of reputation for the excellent quality of its product.

Cheesemakers may obtain copies of this Bulletin free, in English and French, by application to the Dairy Commissioner, Central Experimental Farm, Ottawa.

**COWS NEED BEETS.**—My experience is that more cows die for the want of beets than are ever killed by the feeding of them. I have had some experience in feeding beets to cattle, and find that cows improve in milking very much if they get a good feed of mangolds every day, and will improve in their general appearance by the regular use of them, and my experience is that the parts of the beets that grow above ground are just as good food as those that grow in the soil. I should think that dry corn-stalks have much more woody fibre in them than the upper ends of good beets. Beets beat corn-stalks, turnips, ensilage, and almost anything else in keeping cows in good condition in winter, but should not be fed frozen or on very cold days.

Sonoma, N. C.

W. S. T.

**BEETS AND COWS.**—For years I have fed beets and carrots to cows, and never noticed any bad results. I am not a cow man, but aim to keep one good one, and being a berry grower, I find my roots my cheapest feed. One year I fed about 80 bushels of Yellow Globes. During the winter of 1891-'92 I fed about 80 bushels of beets and 60 of carrots to one cow, and my butter record shows that my feeding was a success. Last winter I fed about 140 bushels of carrots and beets, half and half, and the cow still lives and thrives. I doubted the propriety of feeding so many roots, but I feel perfectly free now to feed a bushel per day. I feed, besides this, all the hay the cow will eat, which is not very much.

Michigan J. H. VANDERFORT.

R. N. Yorker.

**JERSEY SALE.**—On Friday last week the entire herd of Jersey cattle belonging to Lord Chesham was dispersed by Messrs. John Thornton and Co. at the Dell Farm, Latimer. The sale-ring was fixed in a most picturesque position, and the animals were well brought out by Mr. Davies. Mrs. Llewellyn, of Great Missenden, secured Brenda at 22 gs., and Mr. Fenwick bought Colia at 23 gs. The bull Grouville's Boy was purchased by Mr. Johnson, the new tenant of the Dell Farm, at 26 gs. Mr. Johnson also obtained several other choice specimens. The average for forty head was £12 2s. 9d., which, considering the long drought and shortness of keep, was deemed satisfactory. Animals were also purchased for Mrs. Brockholes, Lancashire; the Duchess of Buccleugh, Slough; Mr. R. Fowler, Aylesbury; Mr. Drake; the Hon. Mrs. Candy, Oakham; and Mr. A. E. McMullen.

**BABCOCK'S MILK TEST AT THE NORFOLK AGRICULTURAL SHOW.**

The following appears in the *Norfolk Chronicle*:-

The object of Babcock's machine, which is an American invention, is to test the butter-fat in the milk. By this means, if the whole quantity of milk given by a cow for the year is known, the quantity of butter she will produce can be almost exactly ascertained; or even if the whole quantity is not known, it can at once be found whether a cow is good for butter or not. In a herd kept for butter production, bad cows for this purpose can be got rid of, and so great is the variation shown, that cows giving half the quantity of milk will sometimes be found to give more butter than those giving the larger quantity. But it does not follow that small yield give more butter. Nor, in short, without a test can the butter yield be ascertained, unless the actual cream of each cow is churned separately. The Committee of the Norfolk Agricultural Society arranged with Mr. Thomson, steward of the Necton Hall home farm, to take tests of the cows at the show and exhibit the machine, in which great interest was taken. The following were the results:-

**Per cent of Butter-fat.**

1	Shorthorn (pedigree)	3.7
2	"	4.9
3	" (not pedigree)	3.6
4	"	3.6
1	Red Polled (pedigree)	4.3
2	"	4.7
3	"	4.0
5	"	5.0
1	Jersey, winner of dairy cows.	7.7
2	"	6.2
3	Jersey	7.0
4	"	6.0
5	"	10.0
6	"	10.0
7	"	5.8
8	"	10.3
9	"	7.8
10	"	7.3
11	"	6.2
12	"	6.2
13	"	7.0

The standard quality is 3 per cent, and, therefore, all the cows may be considered good butter yielders, so far as quality is concerned, as they all exceeded the standard. The Jersey No. 8 gives a record, and to show how cow-keepers, without any test, proceed in the dark, the owner of Jerseys No. 6 and No. 2 exhibited No. 2 in the dairy competition and lost the prize. He should have put in No. 6, and would probably then have won it by the points given for butter-fat.

The actual machine used was purchased of an American gentleman, who came to Necton to buy cows for Chicago, and would not buy any unless they tested over 4 per cent. He found several that did that and more, and finally took away three with him, a practical application of science which should show English cow-keepers the way to buy value for money.

**FEEDING COTTON CAKE.**—We are giving our dairy cattle best cotton cake. A few cows we bought last month will not eat it without soaking, so our plan is to pour some hot water on it at night, and give them the cake-mash cold in the morning. We feed once a day the lot this way now. Is it a good plan or not? Does the cake

lose anything of its feeding value for milk by cooking? We are told so, but fancy not. (2) Would the cooked cake be a safe, regular feed for young calves? We began a fortnight ago giving a little to them, and they seem to be doing all right, and have just as nice a bloom on them as previous lots had on linseed cake?—J. G. [Your system of using the cotton cake is a safe and correct one. Such cooking as you give the cake improves it rather than otherwise. Why use cotton cake for milk production? A mixture of oats and beans ground together, soaked in hot or boiling water in the way you name, and fed in a sloppy state at a temperature of 60 deg., would produce not only a larger yield, but a richer quality of milk at a saving of £2 per ton in the price of the food. (2) If you continue to use cotton cake for your calves, let the cake be reduced to meal, then cook or soak it with hot water, and allow it to stand twenty-four hours before being fed. Your calves would do much better on the following mixture.—One of wheat, one-half of white peas, and one eighth of linseed, grind together, soak well in boiling water as before, mix with some chop or dried grains; use one or two pounds per day according to the age of the animal.—G. M.] (1)

**DAIRY TEST, AT CHICAGO.**

The general exhibit of live stock will not take place until August, and in this Canada will be largely represented. Ontario will likely furnish the bulk of the animals, and not only so, but I should not be surprised to see a good many of the awards which go to American stockmen taken by cattle and other stock purchased from our breeders.

In the meantime a test of dairy cattle has been going on, which commenced on the first of May, and so severe were the conditions that only three breeds would face the music—Jerseys, Guernseys and Shorthorns; twenty-five cows of each breed are in the test, Ontario showing up only in the Shorthorn class, where she has five cows selected from the best milking herds. No doubt some results of these tests have already been published in the *Farmer's Advocate*. They are given to the world by means of intricate tables, which, when completed will be the most valuable record of the relative merit of the various breeds ever compiled. The object is to ascertain which cow gives the most profit to the farmer, every item being taken into consideration. There is no pampering or feeding of specially rich foods, but all are treated alike. The ration is of the same quality, is regulated by the superintendent in charge of each section, and each cow is debited with what she eats. It has been the intention to approach, as nearly as possible, the conditions attainable by the average farmer, though I hardly think any farmer in Canada or the United States stables his cattle all summer, giving them only an hour for outdoor exercise, as has been in this test. Nor is it usual to continue the use of ensilage and dry feed so late in this season, but that was unavoidable. The first test, for cheese only, ended on the 26th May, the second, for butter only, began on the 31st May and will last

(1) We should be very shy of giving calves cotton-cake in any form. Sir John Abbott will remember the loss of Guernsey calves from this cause ten or twelve years ago.—Ed

till the 28th August. Without going into figures to any extent, I will just say that while the Jerseys led throughout the first test in quality and richness of milk and weight of cheese, the largest quantity of milk, 50 lbs. per day and over, has been given by two of the Ontario Shorthorns. The very strongest endorsement of the Babcock test as a means of ascertaining the value of milk for cheese-making is also given. There will be two more dairy tests after the butter test is finished, but that is a good way in the future.

**CHEESE AND BUTTER.**

The most interesting novelty shown at the dairy was the "New Era" Disc-churn. It will be remembered that at the last Dairy Show some sensation was caused by the exhibition of a churn which consisted of a large tin disc revolving vertically in a tin pan. The absence of friction of course reduced the labor to a minimum, and—though it seemed surprising—the butter came in not more than the average time—and frequently less—and in good condition. The invention has now been taken up by a company and submitted to exhaustive tests, with the result that the original form has been considerably modified. Tin has been discarded for wood, both in the churn and in the "disc," and a cover has been put on, which bears an important part in the operations. In point of fact, while in the original form it was not easy to see how it was that butter came at all, it is now evident that the old principle of concussion is adopted. The wooden "disc," in fact, which is of substantial thickness, but bevelled all round to a fine edge, is really a "dasher" of a new and very ingenious shape. The churn, as shown at Gloucester, consists of an oblong wooden vessel, with a circular bottom, in which a disc of hardwood revolves vertically in the cream. Over this disc is a hood or "splash-guard," so that when the disc is revolved the cream picked up by it is dashed into this cover, and then returned to the churn at the other end of the vessel. The speed of the disc is multiplied by gearing, so that very considerable concussion is given to the cream, and the butter is brought in a remarkably short time. Butter has been brought in ten minutes with fresh cream at 50 deg., in five minutes at 58 deg., and in still less time with cream, at 70 and 80 deg., without spoiling the grain of the butter. Practically, indeed, butter can be brought in first rate condition at any temperature, and in less than one fourth the time usually taken. This was proved by the churning which took place at the show. Of course, other forms of churn sometimes bring butter very quickly, but this is only by accident—as it were—and always at the cost of injury to the grain. The "principle" of the churn is thus explained by its exhibitors, the "Disc," Churn Company, 39, Coleman Street, E.C.:—"Unchurned cream, as is known by every-one, is characterised by a great amount of 'viscosity'—a gluey consistency which retains and envelops the butter globules and prevents the butter from 'separating' until that viscosity has been got rid of by churning. Now, this viscosity is the feature which has been utilised in the Disc churn, for by reason of it the disc revolving perpendicularly, half in the cream and half out, gets coated with a layer of cream which is thrown off by the tangential force of the revolving disc. Thrown violently into the hood which covers the disc, it receives its concus-

sion there, and immediately returns to the churn. When, however, that change takes place which the 'dairy-maid knows as the 'the breaking of the butter,' the viscosity of the cream disappears and the disc immediately cleans and shows the bare wood once more. This is the sign to cease working; but prior to this, as the churn is open and the whole operation is under the eye of the dairymaid, she gets ample warning of the moment when, in the ordinary churn, over-churning so often sets in.

**BUTTER-MAKING COMPETITIONS.**

The agricultural show season is fast approaching, and with it the butter-making competitions, which, during the past two or three years, have attracted much attention. The question I wish to ask is: Have these competitions and the money spent on the technical teaching of butter-making benefited the ordinary tenant-farmer, whether he is the owner of four or forty cows? I have no complaint against the teachers, many of whom are clever adepts in the manipulation of butter. Any person of ordinary intelligence can master the details of manipulation in a few lessons. I maintain that if butter-making is ever again to become a successful farm-house industry, those in authority, and who are responsible for the teaching, must see that this is carried out on correct principles. The public want fact, not opinions. Is it not a fact that in many butter-making competitions the teacher of the class has been selected to award the prizes? The judge, though actuated by the purest motives, is nevertheless open to suspicion. Frequently the principle on which the prizes have been awarded is open to debate. For instance, the weight of butter produced from a given quantity is a thoroughly fallacious test. It has been proved on undeniable authority that the quantity of water remaining in the butter when made up varies from 8 to over 30 per cent, whilst it is no unusual occurrence to find one-half to three-fourths of 1 per cent of butter-fat left in the butter-milk. This is a most important consideration to the farmer, and although anxious to encourage by every practicable means the extension of butter-making and stock-rearing on every farm, I cannot support the present system of teaching. A new departure is much needed and if carried out on correct lines, would not only strengthen the hands of teachers, but it would enlist the sympathies and gain the confidence of the dairy farmers. Under present circumstances the only prospect open to the holders of tillage farms is the butter dairy and the rearing of stock. Let future competitions be carried out on different lines. The competition should extend over three days. On the first day each competitor receives 12 gallons of new milk, which he or she passes through a hand separator. Each competitor is furnished with the use of a hand separator and an earthenware vessel to contain the cream. A common dairy is provided for the competitors, the dairy is kept at a normal temperature, and each competitor exercises his or her own judgment in ripening the cream for churning. On the third day each sample, both of separated milk and butter milk, is tested by the Babcock machine, in order to ascertain the residue of butter fat left in the bye-products. Then each sample of butter is submitted to a chemist to

determine the percentage of water. As a final test, the different samples are submitted to the inspection of an expert largely engaged in a first-class butter trade. I am well aware that this method would entail the expenditure of extra time and labour, but if strictly carried out it would be a step in the direction of progress, by introducing the teaching of correct principles to a rural industry which is still in a languid condition, and is likely to continue so unless a more expansive system is adopted.

GILBERT MURRAY.

The Farm.

PLOUGHING.

Much may be, and much has been, written about ploughing. It would be easy to occupy column after column with the history of ploughs and their modifications.

To the farmer, however, ploughing is a practical fact, an inevitable expense, and a useful cultivation. On a farm with 400 acres of tillage land there will be at least 500 acres of ploughing to be done every year, at a cost variously computed of from 8s. to 12s. On stiff clay land the cost of ploughing touches £1 per acre, (land on light lands in loose condition the moving of the soil by the plough probably only cost 6s. There can be little doubt that the opinion of even practical men upon the cost of ploughing are often based upon insufficient grounds, and the tendency among valuers is to over-estimate the cost.

When a man or lad ploughs an acre of land with a furrow 9 in. wide, he walks exactly eleven miles, without reckoning turnings or the distance from the stable to the field and back again. It is one of the economies of large fields that the time lost in turnings at the ends is reduced to the least amount. If a man ploughs an acre 352 yards long with a 9 in. furrow he goes twenty-seven and a half times round, and turns on the headland fifty-five times. If we allow one minute for turning, the time thus lost is equal to fifty-five minutes. This would be a field of over average length, being sixteen chains long. If a field is eight chains, or 176 yards long, the number of turnings is exactly doubled, and the amount of time absorbed in turning at the ends amounts to 2 hours and 50 minutes. If a field is 5½ chains long (117½ yards), which is not an unusually small length, then the ploughman will require to turn 165 times, in order to do one acre with a 9-in. furrow, and still allowing one minute to be consumed in turning, he will occupy 2½ hours in this profitless description of work.

PLOUGH PACE.

If we require an answer to the question "How long will a man and horses require to plough an acre of land?" we say much must depend upon the average pace at which the plough travels, and, as shown above, much will depend upon the length of the furrow, and the consequent number of turnings. Now, plough pace is not an exciting speed. As fair walking is reckoned at four miles an hour, so plough pace may be, and has been, taken at two miles per hour, or even

In the Lias and Oxford-clay formations, less than 4 horses in a plough are no use. Ed.

as low as one and a half miles an hour. Applying these figures to the eleven miles walked in ploughing an exact acre, we see that to plough an acre at the rate of two miles an hour would need five and a half hours, and to plough an acre at the rate of one and a-half miles an hour would need seven and one-third hours. To these times must be added the time required to walk to and from the field, and the time wasted on the headlands in repeated turnings.

CASE 1.

We shall first take the case of a ridge sixteen chains, or 352 yards, long, and a distance from home of half a mile. The time required to plough this acre may be computed reasonably as follows:

	hrs.	min.
For walking to and from the field, 1 mile.....	0	30
For actual ploughing at 1½ mile per hour.....	7	20
Time lost on headland.....	0	55
	8	45

Now, supposing the man starts at 7 a. m. and returns home at 4 p. m., and further supposing that he has rested half an hour in the middle of the day, he has been at work 8 hours and 30 minutes, and would therefore only be able to do his acre by keeping within the allotted times given above.

CASE 2.

If, however, the land is light and plough pace can be kept up to 2 miles per hour, the case stands as follows:—

	hrs.	min.
For walking to and from the field, 1 mile.....	0	30
For actual ploughing at 2 miles per hour.....	5	30
Time lost on headland.....	0	55
	6	55

A few test cases might readily be taken by a master in order to ascertain what is the habitual pace of his teams when at work, and we are inclined to think it will be found nearer 2 miles an hour than 1½.

CASE 3.

Let us now apply these figures to the case of short ridges of 117½ yards in length. In the first case we shall take stiffish land, on which the horse-move along at the very dignified pace of 1½ miles an hour. Assuming the same distance from home, we have the following result:—

	hrs.	min.
For walking to and from the field.....	0	30
For actual ploughing at 1½ miles per hour.....	7	20
Time lost on headland.....	2	45
	10	35

In this case it would need 7 hours 56 minutes to plough three-quarters of an acre, and this would probably be about what would be accomplished.

CASE 4.

Lastly, we take the case of easier working land, in which the horses move at the rate of 2 miles per hour, but when the work is retarded by short ridges and many turnings:—

	hrs.	min.
For walking to and from the field, 1 mile.....	0	30
For actual ploughing at 2 miles per hour.....	5	30
Time lost on headland.....	2	45
	8	45

It will be seen by reference to case 1 that strong land with long ridges takes no more time to plough than light land with short ridges. The two agree to a minute.

PLOUGHING WITH A WIDER FURROW SHIN.

The above calculations are made upon the assumption of a 4 in. furrow shin. We are, however, disposed to think that the ordinary furrow slice is 10 inches, in which case the distance to be walked in ploughing an acre is reduced from eleven miles to 9.9, or we may say ten miles.

With a 10-in. furrow the ploughman, therefore, saves one mile of walking in ploughing his acre, which may be computed as worth from half an hour to three quarters, according to the estimate of plough pace. If, then, we assume that a 10-in. furrow slice is cut, we are entitled to make a deduction from the calculated time. (1)

CONCLUSION.

The conclusion may, therefore, be fairly drawn that with a 10-in. furrow, on light land, and in large fields, where the ridges are 352 yards long, that it ought not to need more than 6 hours and 25 minutes to plough an acre, supposing that the ordinary pace is two miles an hour. That in short fields, where a greater amount of time is lost in turning, an acre ought not to require more time than 8 hours 15 minutes.

Now we particularly wish to call attention of readers to the expression "plough pace." A great deal depends upon this factor, and in assuming it at one and a-half miles per hour for heavy land, and two miles per hour for light land, we are probably doing an injustice to that spirited animal, the farm horse, and that spirited rustic who accompanies him in his daily tasks.

It is from data such as we have given above that we can alone arrive at a sound conclusion as to the actual time which ought to be consumed in ploughing land of various qualities. It is a matter of time and of space.

JOHN WRIGHTSON.

PLOUGH PACE.

Yesterday I had an opportunity of quietly watching the teams, and I found that the ploughs went five "bouts" in exactly 45 minutes in a furrow 312 yards long. That is, they travelled 2,496 yards in 45 minutes, or at the rate of 3,328 yards per hour = 1.8908 miles per hour. I also took observations of horses dragging (four-horse harrowing), and I found that they travelled at the rate of 1.61 miles an hour.

The circulation made upon the spot may be given as follows:—Six horses, drawing three wooden drags, went several bouts at an average speed of one bout of 440 yards in 9 min. This was 1 mile in 36 min. The work done measured exactly 20 ft. in width, and

(1) In 1872, at Compton, Col. Pomeroy's man told us he usually ploughed THREE acres a day!—Ed.

the area performed in one hour would be exactly 4 acres. These three drags were, therefore, working at the rate of 82 acres in a day of eight hours, or close upon 11 acres each per ordinary day. (1)

COST PER ACRE.

If six horses cost 2s. a day each, and the boys with them are valued as receiving 1s. 8d. per day, the cost would be 12s. a day, or under 6½d. per acre and to this must be added the wear-and-tear of the drags, which may be assumed at 3s. The total cost of dragging would, therefore, appear to be about 7½d. per acre. We would ask how this is to be reconciled with the reckless figures almost always attached to costs of tillages, based upon the ideas of professional valuers? Referring once more to the statistic above given of the actual speed of horses in ploughing 1.8 miles per hour represents 14.4 miles in eight hours, whereas in order to plough an acre with a 9 in. furrow exactly eleven miles must be walked. The requisite distance would, at the rate ascertained, be done in just over six hours on land after sheep folding. There ought, therefore, to be no difficulty on any medium land in ploughing one acre a day, and yet this is generally looked upon as an amount which can scarcely be maintained as an average. We are disposed to think that, leaving out of consideration really stiff soils, such an average ought to be kept up. I have thought it worth putting the above observations on record because they were made without the knowledge of the teamsmen, who were "ganning their own gait." If other would and record the actual speed of their teams, and measure the length and the breadth of the work, we should obtain clearer ideas as to what is done and what ought to be expected.

(Ag. Gazette.)

PREPARATION OF SEED-BEDS.

At the season of spring there is nothing of greater importance to the arable farmer than the preparation of seed beds, for much of the success of the year depends upon the condition the land is in at the time the seed is sown. Autumn-sown crops are not so much influenced by the state of the land when they are put in, because the hardness which enables them to live through the rigours of a severe winter also befits them to overcome other difficulties connected with the early stages of their existence, and inequalities of growth during autumn are rectified during the comparatively dormant period of winter.

The two essential points in obtaining a tilth, and which always will secure it—providing always the land is properly drained—are that the tiller knows when to work the land, and when to leave it alone, and that, knowing these, he loses no opportunity that presents itself, but turns to best account the varying conditions of climate. In the first place, it is useless to stir wet and heavy land until it is sufficiently dry, for if stirred too early it is rendered more unworkable, and the labour bestowed, instead of aiding, hinders progress. Not a few mistakes are made every season in this way, and it is to be regretted that there should be such a poor reward for the energy displayed, as no one who gets behind with his work can hope to come out

(1) We talk here of 2½ and over 3 acres a day ploughed by a pair of horses!—Ed.

of the seeding time satisfactorily, and the fear of being behindhand often urges men to commence operations against their better judgment. What- ever the inducement, it is unwise to stir the land when, instead of work- ing freely, it is only worked up into a stiff paste. If the land is left until it has got to the necessary condition of dryness, and the advantage is taken of a spell of dry weather, the formation of a tilth is a matter of comparatively small labour. Of course, all crops do not require the same degree of fineness and friableness, therefore it must not be thought that the horses must nec- essarily be idle. Ploughing may be proceeded with, and during slight frosts great advantage is obtained if a frozen layer is turned over, for when this layer thaws it shatters into minute particles, and allows the water to drain from it freely. Beyond this, the layer thus formed permits the moisture from the portion above it to sink lower, and, further, the tough, wet furrow is brought to the surface, and thus ex- posed is caught by subsequent frosts so that the whole depth of the furrow is reduced to such condition that a friable tilth is easily produced by the stirring implements subsequently em- ployed. Such a tilth is in reality a seed-bed, for it is more porous and more friable than one which is a tilth only on the immediate surface, conse- quently excessive moisture drains from it rapidly, and it takes in warmth from the air without being subjected to the great loss of temperature which always accompanies evaporation.

The breaking up of land by means of harrows and other stirring imple- ments is very necessary in the pro- duction of a tilth, but if the surface is pulverised at the cost of the portion below, it is but a sorry tilth after all. Yet there are seasons when it is diffi- cult to find opportunities to set about it, therefore the earlier operations should be performed with the view of lightening this portion. Land which is ploughed in a wet condition with a plough which consolidates the furrow more than necessary, must be in an unfavourable state for treatment unless the weather has been singularly suit- able for the drying of the furrows, and no wonder a high crest is required so that there may be a portion of each furrow in more favourable condition, but as we have so frequently pointed out, it is far better to plough the land with a plough which loosens it rather than tightens it, consequently the digging ploughs are far preferable for the work. Those who have not had experience of them should set aside prejudice, and give these ploughs an unbiassed trial; and there is little doubt that they will see how much more advantageously they perform their work. If it is not apparent at once, it will be when the subsequent work of tilling is carried out, but, beyond that which is immediately visible, there is the great difference below the surface, for, if the season comes wet, it will be easy to see how much more easily the water drains away from this portion than from adjoining pieces which have been worked with other ploughs. This is chiefly due to the much less work which is required to pulverise it, as the heavy scufflers are not necessary to break up the furrows, consequently much of the treading by horses is avoided.

During the later operations, the advantage of frosts, even though they be but slight, must not be lost sight of, for it is only by utilising them that it is possible in "catchy" seasons to make the harsher clods pulverise. Many unpromising pieces of ground

have been rendered perfect seed beds by repeated harrowings while the clods were in a frozen condition, and an endeavour should be made to get the teams at work early on frosty mornings, so that no opportunity be lost. Marsh clods often will not break by rolling, as the pressure only tends to consolidate them, therefore the necessity of watching for special op- portunities to use the harrow cannot be missed.

If the surface has become very hard, it is not advisable to waste time on it if there is other work to be done, for if the clods become perfectly dried, they will yield after the first rain, but they must be closely observed when the rain ceases, so that the fullest advantage is taken, otherwise they may harden again, and some time may elapse before another opportunity occurs.

Very often, at this season, the winds are very drying, and land which is recently trodden by sheep becomes tough on the surface, and in a short time the moisture is evaporated for some little distance. Should too long time elapse before the ground is broken, a seed-bed may prove very difficult to obtain. Under such circumstances the ground should be ploughed, or scuffed, for about an inch and a-half to two inches in depth, and immediately reduced to a tilth. This will be easy. If this tilth is left on the surface for a few days the portion below will become more friable, and should then be ploughed to the surface; with little trouble it can be brought to a tilth, and a tilth several inches in depth will be formed with comparatively little horse labour. If such land is ploughed to the full depth at once a great ex- penditure of time and labour will be required, and probably a satisfactory tilth will not be made until it is too late to hope for the best results from the crop to be sown on it.

(Mark Lane Express).

#### TAKE CLOVER AT ITS BEST.

Now a word as to hay: The great mistake of making hay is its being left to get too ripe before cutting. I am aware that chemists tell us that grasses possess the greatest amount of nutrition when ripe, or nearly so, but the question is whether the stomach of an animal can fully indorse the teachings of the chemists' laboratory. My experience is that the period when grass (pasture) gives the greatest flow of milk is the time to cut it to make the most nutritious hay, and I would rather err in cutting too early than too late, for several reasons. Of course, grass requires more labor and care in curing, but at the same time will not suffer as much from rains as that cut too ripe. It will be less harsh and will occupy less space in storing, stock will relish it better, and the flow of milk will be greater than from grass cut too ripe. By cutting clover quite early, we get a good second crop, which is of more value than it generally gets credit for. Clover will not die out so soon as when cut too ripe; for exam- ple, a clover seed crop generally finishes up plant and all. To secure a good stand of clover, not less than six quarts of prime seed per acre should be sown. On well prepared ground, less will answer the purpose. By mixing some Alsiko clover seed with it, a better stand is often secured, and the latter will not heave out. Crimson clover may be a valuable acquisition, but will require further trial to prove its adaptation to different soils and

latitudes. Sowed on well prepared (1) ground in August or early in Septem- ber, it has produced excellent crops the following season, and is in full bloom 10 days or more in advance of common clover, and makes pasture equal to the latter. Whether it will prove equal as a fertiliser or renova- tor of soils, I am not prepared to say, but, in my opinion, it deserves more extensive trial. (November, Ed.)

H. M. ENGLE.

(Rural N.-Yorker.)

WHEAT-YIELD.—Mr. Ruskin declined to visit America, because "there were no castles" there. But Wisconsin—America of the Americas—has produced what perhaps is even better than castles—namely, a true blue Conserva- tive, a genuine *laudator temporis acti*. The president of Wisconsin University says:—"Our fields are not what they used to be. The yield of wheat has fallen in twenty years in New York State from 13 to 10 bushels; in Kent- ucky, from 10 to 7 bushels; in Indiana, from 14 to 10; in Illinois, from 14 to 10; in Georgia, from 7 to 5; in Mis- sissippi, from 9 to 5; and in Texas, from 12 to 8. Corresponding deca- dence is shown in maize and oats." Alarming intelligence—only it has been anticipated by Sir John Lawes by at least thirty years! Rothamsted has shown us that repeated wheat crop off the same land, unmanured, drop from 30 or 40, to, at best, 14 bushels per acre, but that from this ebb there is no further fall into nothingness. The American farmer of the nineties may get by manuring and drainage his 25 to 30 bushels, just as his English cousin does; but on unmanured land, no longer virgin soil, he must be con- tent with a square 10 bushels in ordi- nary years, 12 to 13 in exceptionally favourable seasons.

(The Farm and Field.)

CLOVER CULTURE.—By Henry Wal- lace, Des Moines, Iowa. The *Home- stead Company*.—In reading American agricultural papers, nothing strikes the English farmer more forcibly, as showing how far behind the times in some respects his American cousins are, than letters about the advantages of growing the common varieties of clover, and records of trials of some of them as novelties in certain districts. In the United States, then, there was need of such a treatise as that before us, in which Mr. Wallace has de- scribed the different varieties of clover—or, rather, some of them, for he does not mention our common yellow clover, usually styled trefoil (*Medi- cago lupulina*, or sainfoin—and dealt at length with their culture, curing, and insect enemies. We do not under- stand the recommendation to sow clover early in March, except in the warmer portions of the United States, as a very severe frost after the young plants are up would destroy them. It is strange to English readers, too, to read of clover being covered to a depth of two or even three inches; but it appears that, in America, there is great danger of the seed not having sufficient moisture in the spring to cause germination. Mr. Wallace dwells usefully upon the value of clover as a means of restoring fertility. We alto- gether dissent from his ideas as to curing clover apparently our friends in America do not know how to make clover hay properly. Instead of

(1) The simple harrowing of a wheat stubble before and after sowing is all the cultivation crimson clover, *t. incarnatum*, ever gets in England.—Ed.

using the tedder, and drying the crop as quickly as possible, clover should be cured slowly in the swath or in the cock. The latter is best, but involves extra labour. When clover is spread out thinly by a tedder, and exposed to hot sunshine, it cannot be got to re- ther again without a serious loss of the most valuable portions of it—the heads and leaves, which quickly be- come brittle. A curious feature of the little book before us is a long discus- sion of the question of the possibility of the spontaneous combustion of a clover stack, in the course of which several scientific authorities are cited in the affirmative. There is a strange scepticism on this point in America, though there is not a farmer or a farm labourer in England who has not fre- quently seen certain proofs of sponta- neous combustions in the charring of the inside of a clover or other hay stack; while there are few, if any, who have not known a stack to be burnt up from the same cause.

(Eng. Ag. Gazette.)

## Manures.

### THE MEANING OF A FERTILISER ANALYSIS.

A. T., *Guysville, O.*—What is the difference in value between the follow- ing two potato specials:

#### No. 1. ANALYSIS.

Ammonia.....	1½ to 2½
Soluble phos. acid.....	7 to 9
Insoluble phos. acid.....	1 to 2
Reverted phos. acid.....	1 to 2
Total.....	9 to 11
Equal to bone phos.....	19 to 21
Potash (K <sub>2</sub> O).....	3½ to 4½
Equal to potash (sulph.)	6½ to 8

#### No. 2. ANALYSIS.

Ammonia.....	5 to 6½
Available phos. acid.....	9 to 11
Insoluble phos. acid.....	2 to 3
Potash.....	5 to 5½

Please explain so that a common farmer can understand. What puzzles me is the difference in the terms used. What does K<sub>2</sub>O mean in the first analysis?

Ans.—There is no sense in any man- ufacturer's printing such an analysis as No. 1. It is misleading and confus- ing. No. 2 is right except that it is unfair to print the per cent of nitrogen instead of ammonia. "Ammonia" is a mixture of one part nitrogen and three parts of another gas—hydrogen. Ammonia weighs more than nitrogen alone—by the proportion of 17 to 14, so when the manufacturers figure on the basis of ammonia they get a larger percentage than if nitrogen alone were taken. This is not fair because the farmer often thinks he is figuring on the basis of pure nitrogen when really the per cent represents ammo- nia—a substance nearly 25 per cent heavier. Deduct 18 per cent from the amount of ammonia claimed and you will have about the amount of nitro- gen. Phosphoric acid is found in three forms in one fertiliser. "Sol- uble" means that which will dissolve in water. "Reverted" was once solu- ble, but has changed chemically so that it will dissolve only in weak vinegar. Both "soluble" and "re- verted" are available—that is, the plants can make use of them. The advantage of having "soluble" phos- phoric acid is that the young plants can utilise it quicker than the "re-

verted." "Insoluble" refers to the portion that must be treated in sulphuric acid before it will dissolve. All that is necessary is to give the amount of available and insoluble. To give in addition the "reverted" and "total" is misleading and a waste of space. "Equal to bone phosphate" is another childish statement that confuses many farmers. A "bone phosphate" represents simply the combination of phosphoric acid and lime as found in bones. This manufacturer wants to give the idea that there is enough phosphoric acid in his fertilizer to make that much bone if it had come from bone. It is just like a cook saying: "I have a pound of flour—equal to three pounds of bread." She might thus get some people to think she had three pounds of bread when she had nothing of the sort. The manufacturer who puts "equal to bone phosphate" on his bag does it because he wants people to think he uses bone in his fertilizer, when in reality it is just as likely that he used phosphate rock entirely. "K<sub>2</sub>O" is the chemical symbol for what is called potash in fertilizers. K is the letter by which chemists designate potash and O represents a gas, oxygen. "K<sub>2</sub>O" means two parts of potash and one of oxygen which is the combination in which potash is best used, just as phosphorus is not used alone, but when combined with oxygen to make phosphoric acid. "Equal to potash (sulphate)" is just like the "bone phosphate." The sulphate of potash is the most expensive form of this material. In it the potash is combined with more than its own weight of other substances. This manufacturer wants to convey the idea that he has used sulphate of potash, when perhaps he has done nothing of the sort. He also wants to make a big and unfair showing—like the cook with her flour and bread. Change ammonia for nitrogen and No. 2 is simpler and less confusing. There is absolutely no excuse for such an analysis as No. 1. Another point to remember: In No. 1 the manufacturer guarantees "ammonia 1½ to 2½ per cent." A farmer buying that fertilizer has a right to assume that there are only 30 pounds of ammonia in the ton. That is, the lower figure of the guarantee is all that the farmer should look at. The other one per cent that may be there is none of his business. All that is actually guaranteed in that analysis is 1½ per cent and that is the basis on which it should be bought and sold.

(R. N. Yorker)

**SOMETHING NEW IN MANURE HANDLING**

How do you handle the manure? We mix the horse, sheep and cow manure together so as to prevent its heating. We would draw water on it rather than to have it heat. We do not let the manure accumulate in the barnyard, but draw it to the fields as often as we can get at it. Our cow manure is nearly clear droppings, as we cut all the straw with our ensilage cutter, and bed with that; it makes a nicer and better bed and much better manure, besides saving lots of straw, of which we are always short.

"Do you plow in your manure?"

"No; we get better results by putting it on top of the seeding. I use the Kemp manure spreader, and would as soon think of giving up my binder as of doing without it. We usually apply the manure directly after sowing the grain, or at any rate

before the grain sprouts or we have rain. For years we had great trouble in getting a catch of clover, but with this plan, with the manure on top, we have a grand catch. We have tested it in the same field with the best results, for both the grain and clover. I think that the manure shades the young clover and also retains the moisture."

"Do you top-dress your meadows?"

"Yes; I think we have been plowing them up too much. By top-dressing with the spreader we can put on any desired amount evenly, and it gives excellent results. I have often put manure on an old pasture late in the fall, and it has given us an excellent crop of hay the following year." (R. N. Yorker.)

**WASTE OF MANURES**—In discussing the waste, as well as the preservation, of manure in open heaps, sufficient discrimination is not always made between their condition as to the quantity of dry absorbent used. In the cases reported by Prof. Roberts of Cornell Station, the manure heaps were entirely exposed to the washing of rains with but little absorbent, and as a consequence, nearly one-half of their value was washed away; while in the heap described by our correspondent, there appears to have been enough straw, cornstalks, &c., to prevent much if any washing of the valuable portions of the manure. This was indicated by the fact that there was no evidence of the manure as far away as six feet from the pile. The value and quantity of plaster and salt must depend on the needs of the soil to which they are applied, and this can be determined only by actual field trial; we cannot, therefore, say whether there is too little or too much. If the land in your neighborhood is commonly benefited by plaster and salt, then you may be encouraged to add them to the heap; but if they are not found of any use, then you may as well omit them. The long time in which the manure is accumulating, doubtless reduces it to a fine condition for spreading on the inverted sod, and the special care required is to use enough efficient absorbent to prevent washing and waste. Firefanging is to be prevented by retaining enough moisture in the heap, and to prevent so hot a fermentation as to drive this moisture out. It will thus be seen that constant care is requisite to prevent the extremes of too great heat, of waste by washing, and other influences.

We may add that one of the best farmers in Orange County, N. Y., used to draw all his yard manure in the spring to the field intended for fall grain, putting it in a rectangular pile with sloping ends so that the team could drive on and off, thus compacting it. All his straw and stalks (1) were mixed with it, and the loss from exposure he considered little or nothing. (Cultivator.)

**Poultry.**

**THEIR PROPER CARE AND TREATMENT.—SOME EGG-PRODUCING RATIONS.—A RATION OF PROF. SHUTT AND AN EXPLANATION OF THE SAME—HOW THE RATIONS SHOULD BE FED.**

By A. G. Gilbert, Poultry, Manager, Central Experimental Farm, Ottawa.

In our last we considered the proper treatment of the laying stock in (1) A universal practice in England.—Ed.

winter. In so doing stress was laid upon the necessity of giving the layers room, exercise, and the little essentials we see the hen pick up for herself when running at large in summer. We will now give some attention to certain rations calculated to produce eggs and flesh. Variety is said to be the spice of life. We know that variety in the daily rations of the human family gives zest to the employment of the same. It is similar in fowl life. A varied diet is necessary and beneficial.

**A RATION FOR MORNING FEED.**

A good mash, to be fed warm or cold as thought best, to the laying stock as soon as daylight will permit on a winter's morning, may be composed of bran, ground wheat, ground oats, ground barley, with any sort of vegetables most convenient, or most abundant. It will be necessary to have the vegetables boiled and the whole should be mixed with boiling water, when prepared. On a cold morning in winter we prefer to have the mash warm, as the effect is apt to be more stimulating. However, it is sometimes more convenient to have the ration prepared the evening before. It is not necessary that all the ground grains mentioned should be mixed up at the same time. And at times it will not be amiss to put some coarse sand and very fine gravel, or ground oyster shells, in the mess. But where the laying stock have a constant supply of lime, gravel, sand or grit of some kind before them, the sand and gravel addition, may not be necessary. Where vegetables are abundant, the mash may be made to contain less ground grain and more vegetables. Or, where there is plenty of milk, sweet, skimmed, in the shape of butter milk, or curds, the mess may be mixed with the milk in any of the shapes named with the best results. It must always be remembered that milk is one of the best foods that can be fed to either laying hens or growing chickens. Indeed, it has been called a perfect food. *En passant*, we may remark that it is for the farmer to find out by his own calculation whether it will pay him best to feed his milk to make pork at five cents per lb., rather than to make poultry flesh, that will return him fifteen cents per lb. The mash must not be fed in too great quantity or the hens will become too lazy and too fat. What quantity then? Enough to barely satisfy but never to gorge. In a previous article the same remark has been made, but we repeat it, for it is important to remember. No matter how perfect the ration may be, if overfed all good effect will be lost. As to the proportions of the different grains and substances to make the mess, that will depend upon the number of fowls. A little experience will soon teach the right quantity. Enough ground wheat should be mixed to make the whole mess "crumbly" and it should never be fed too "sloppy" or in the least sour. Where vegetables are not over plenty, clover hay scalded the night before, and let remain in the boiling water till morning will make a good substitute. The clover should be cut up in inch, or smaller lengths.

**RATION BY PROFESSOR F. T. SHUTT.**

The following ration prepared by Professor F. T. Shutt chemist of the Central Experimental Farm, will be found very valuable in the production of eggs. The vegetables, as in the previous rations, may be mixed with it. There are two rations marked "A"

and "B". There are also rations for evening feeding. We should recommend that the rations "B" containing the greater percentage of corn be fed to the layers of the Spanish family viz: Leghorns, Minorcas, Andalusians, Hamburgs and Red Caps, and mayhap to Wyandottes under two years:

	Parts.	Albuminoids.	Carbo-hydrates.	Fat.
A				
Middlings or shorts..	45	6.75	27.90	2.25
Corn meal.....	10	1.00	7.50	.49
Pea meal.....	35	7.00	17.50	.35
Ground wheat.....	10	6.00	.....	1.00
	101	20.75	52.90	4.00

400 x 2.5 = 10.00 ; 52.90 = 62.90.  
Nutritive ratio 20.75 : 62.90 :: 1 : 3.0.

	Parts.	Albuminoids.	Carbo-hydrates.	Fat.
B				
Middlings or shorts..	65	9.75	40.30	3.25
Corn meal.....	25	2.50	18.75	1.00
Pea meal.....	5	1.00	2.50	.05
Ground wheat.....	5	3.00	.....	.50
	100	16.25	61.55	4.80

4.80 x 2.5 = 12.00 + 61.55 = 73.55.  
Nutritive ratio 16.25 : 73.55 :: 1 : 4.5.

**Evening Feed:**

1 : 5.2	Whole or cracked corn ..	10	} 1.0
	Wheat.....	90	
1 : 8.0	Whole or cracked corn.....	90	} 100
	Wheat.....	10	

**EXPLAINING THE LATTER RATION.**

The following explanation of the above ration by Mr. ... Lehman, lately assistant to Prof. Shutt, will be read with interest as throwing light upon the functions in the animal economy of the food constituents:

"The composition of the rations is shown in the table. The three most important groups of compounds are albuminoids, carbohydrates, and fats as stated. The carbohydrates embrace such compounds as starch and sugar. Their principal function is to supply animal heat. The fats of grain and plants and of animal bodies are closely related to each other. The fat of the food may be changed in the system to animal fat and stored away for future use in the tissues of the animal. Sometimes it is employed in the preparation of such products as milk and eggs and at other times it supplies animal heat. If used for the latter purpose fat is two and a-half times as valuable as the carbohydrates, since pound for pound it produces two and a-half times as much heat.

The albuminoids also occur in both plants and animals. They are a large and complex group of compounds and are considered the most valuable constituents of a fodder. By replacing the waste of the animal tissues and



supplying largely material for the increase in weight of growing animals they rank alone in performing functions of vital import. The albuminoids may, however, also perform the functions of the fats and carbohydrates and it is possible to feed some animals exclusively upon this group of compounds. The carbohydrates and fats preserve the albuminoids and prevent the strain on the excretory organs which an exclusive albuminoids ration would produce.

It is therefore important and for the health of the stock as well as for the profit of the feeder to use a ration having the suitable proportions of albuminoids, fat and carbohydrates. That these proportions must vary, not only with the function of, but, also with the kind, disposition, and surroundings of the animal is self evident. Much has been done for the feeder of the larger domestic animals to find economic rations, and it is with the object of helping the poultry raiser to a more rational system of feeding that these rations have been prepared. It will suffice, in conclusion to say that the ration 'A' predominates in albuminoids, while 'B' may be considered the richer in carbohydrates and fats."

We offer no apology for giving such space to the subject, for it is a most important one. In our next the proper care and treatment of growing chickens will be taken up.

#### EXHIBITION FOWLS

AND

#### USEFUL POULTRY.

It is satisfactory to note that the views which I have long advocated as to the desirability of considering fowls from a useful standpoint are gradually being recognized, even in the fanciers' journals. I have long protested against the making an important feature of the useless monstrosity of the fifth toe in the Dorking, as did the Rev. Mr. Boyes, one of the earliest exhibitors, the first man in this country who ever sold a pen of Dorkings for £50 which, I may remark, was done by the secretary of the Hitchin Show against the will of the vendor. Mr. Boyes not wishing to sell his Dorkings, which were certainly then the best in England, entered them as "not for sale." The secretary thought that these words did not look well in the catalogue, so entered the pen at £50, thinking that a perfectly prohibitive sum for a cock and two hens, such as were exhibited at that period. The birds were claimed and paid for, and he wrote in triumph to Mr. Boyes at the extraordinary price he had secured for his Dorkings, only to have an angry letter from the reverend exhibitor repudiating the transaction. I relate this anecdote in order that I may add to it the fact that Mr. Boyes was in the habit of cutting off the extra toe from his chickens as soon as they were hatched, knowing that the deformity led to bumble foot—lameness—followed naturally by loss of fertility and other evils. The influence of the fancy may be inferred from the fact that the most successful exhibitor of Dorkings since the time of Mr. Boyes was in the habit of looking over his chickens as they were hatched, and instantly sacrificing any that did not show a well-developed fifth toe. I myself some years ago had the temerity to award a prize to two Dorking hens, regardless of the

fact that one of them had not the fifth toe on one foot. They were a long way the best in the class, but the award was denounced by all the Dorking fanciers, and I confess I never had the boldness to repeat the experiment.

In the current number of the *Stock Keeper*, one of the most important of the fanciers' journals, is a series of editorial articles on bumble feet in Dorkings, in which the common-sense views of the matter are recognized. Bumble foot is traced to the abnormal monstrosity of the fifth toe, and the writer says that Dorkings and Houdans alone appear to suffer severely from this malformation. He also acknowledges what is perfectly true—that, when the Houdan was first introduced into England, very few of the birds had five toes, and now comes an illustration of the fact that I have so long maintained—that the fanciers have done their best to spoil the useful properties of every breed that they have taken in hand. The writer says:

"For a long time the feet on this variety kept as clean and neat as those of a Hamburg or a game fowl, but, when once fashion dictated that the fifth toe must be a feature, then we speedily found coarse-footed birds, and afterwards, gradually, we have noted that bumble feet have become dismally common. We therefore fully believe that the abnormal excess of the structure of the foot in the shape of the fifth toe must alone be considered the cause of the difficulty. We confess that we are surprised that this particular feature should, long ago, have been insisted upon in the table breed of our mother country, and that of our next-door neighbour over the water. The edict has, however, long since gone forth that a Dorking must have the fifth toe and likewise a Houdan, and we can never now alter the rule, so we can only advise what to do when this malformation of bumble foot and corns and abscesses at the bottom of the feet unfortunately occur."

The last part of this quotation shows the senseless influence that is exercised by fanciers on useful varieties of poultry. (1) We are told that, because the exhibitors want it, we can never now alter the rule and get rid of a ridiculous malformation, which is bred for in order to obtain prizes. The treatment of bumble foot is then entered into, and the writer confesses that it is almost incurable. Its presence, however, is greatly promoted by the practice of having high perches in small houses, necessitating the fowls jumping down nearly perpendicularly, when the feet come into violent contact with the ground. If houses are built for heavy fowls, and they are shut up at night, it is much desirable that the perches should never be more than 4ft. from the ground, and they should all be placed, as I have repeatedly urged, on the same level, so that the birds do not fight for possession of the highest.

The evil influence of breeding solely for show points has not been confined to table fowls, but extends also to the best laying varieties. The unimproved farmyard Minorca of the south-west of England was unquestionably the best layer of the largest eggs. Since the Minorca has been elevated, as possibly the fanciers might term it, to the dignity of an exhibition fowl, it has greatly fallen off in this respect. My friend Mr. Bovington, who keeps an accurate record of the produce of

(1) Precisely what we told a contributor to this Journal 15 years ago.—Ed.

his birds, told me that a few years since his Minorca pullets averaged 200 eggs per annum each. In the course of the valuable experiments he has been in the habit of conducting, he got rid, unfortunately, of the whole of his Minorcas. Some few years afterwards he had occasion to renew the breed, and he found that the influence of the shows and breeding for face and comb had so far deteriorated them that the average product had fallen off 25 per cent, and his birds now average 150 in place of 200 per annum each. How far breeding for fancy points has been carried in these useful birds may be inferred from the fact that in the same number of the *Stock Keeper* the editor asks, "To what extent is trimming permissible in Minorcas?" He says that he has seen many exhibited which have evidently been plucked in the face, and some that had even been shaved to improve their appearance, and to defraud the novice who wishes to buy; and he says: "Why these shaven birds should have a preference over the natural bird we cannot tell, and in the interest of novices we think the judges should wake up and set this matter to rights."

I am exceedingly glad to see a journal whose influence amongst exhibitors is as great as that of our contemporary adopt this tone. The inutility of ordinary competitive shows in improving or even encouraging the useful characters of poultry is becoming generally acknowledged.

W. B. TEGETMEIER.

#### THE PRODUCTION OF CAPONS.

A great deal has been published concerning the enormous profits to be made by producing capons. There is no doubt that the flesh is extremely delicate and palatable, but if the profits were as large as claimed, surely more poultry raisers would produce capons for market. The price of Philadelphia large capons in New-York City February 3rd was 21 to 22 cents per pound. The best price for Philadelphia chickens on the same date was 16 to 17 cents, thus showing five cents in favor of capons. Young broilers, however, bring all the way from 35 to 70 cents per pound during March, April and May when most in demand, and capons seldom reach up to 30 cents per pound. Whether they will pay as well as broilers is doubtful, but they certainly do pay better than raising fowls, chickens or turkeys.

There is nothing to prevent any careful farmer or farmer's son from learning to caponise if he has the right kind of tools. The work requires nothing but a quick, steady hand, a correct eye and a little practice and, as there are men in New-Jersey making in the neighborhood of \$15 a day by caponising for farmers, it is evidently worth while to learn how to do it. The caponising should be done a bright day, but, if possible, out of the sun so as to avoid any shadows falling on the work table. For operating upon, select large early maturing cockerels, such as Plymouth Rocks and Wyandottes crossed on Brahmas or Langshans. If operated upon in September, October and November they should be ready for market in March, April, May, and June when they will bring the highest prices.

Like other fowls capons should be fasted 24 hours before killing. The head, which is the distinguishing mark of a capon, should always be left on. They should be bled by cutting inside the mouth or throat. The neck and

saddle feathers are large and fine, and distinguish a capon from other fowls, therefore are left on as well as the feathers on the leg from the hock joint half way up the thigh, also those on the outer joints of the wing. The breast, back, wings next to the body and the upper part of the thighs are dry-picked clean. The mouth, shanks, and feet should be washed, especially removing clotted blood from the mouth. For the New-York market they should be sent undrawn, packed in boxes, or flour barrels washed clean and lined with white paper. The Rhode Island station at Kingston has published in Bulletin 20 the results of some very interesting experiments in caponising, describing the various kinds of tools that can be used and going minutely into the details of performing the operation, all of which is additionally explained by illustrations.

American Ag

#### RAINY WEATHER AND LITTLE TURKEYS.

I am sorry for every one who has a flock of little turkeys this very rainy weather. If given unrestricted range they are sure to die, and if kept confined all the time they cannot possibly live. You must keep one eye on the clouds and one on the turkeys; turn them out whenever it is possible—a run of even a few hours will be of immense benefit—and be ready to re-coop them when the thunder rattles and dark clouds begin to rise. This is sure to happen if you steal off for a nice nap in the daytime. The thunder breaks into your dreams and scatters them just as the wind that comes before the rain drives before it the young leaves it has just twisted off. I speak feelingly, as my past experience on this subject was a few hours since, and now I must drop my work again and go let out all the little things, as it was a false alarm; the rain did not come at all. The shower passed over us, and I hope received a warmer welcome than it would have had here where it has rained almost half the days for months and months.

In such seasons young turkeys suffer more than any other young fowls, as it is their nature to be out always in the open fields and woodlands. They care nothing for light showers, and can stand even ordinary rains with impunity after they are larger, but such tornadoes and cloud-bursts as we have had lately would drown much bigger things than little turkeys. Such a rain as that last night would go right through the wings of the mother-hen, even if she had sense to select for the night a spot of ground where water would not collect—a thing which very few hens ever do. Coops, with me, are a necessity if I raise any young turkeys, and good coops too, roomy and well ventilated, yet rain-proof, light enough also to be easily moved to a clean spot on the short grass, for cleanliness is as necessary to the well-being of a young turkey as to the comfort of a child. I used to try coops with floors, or would improvise a floor of loose boards in damp weather, but I found that both mother and brood did better on the grass; only be sure that the ground is high enough to admit of drainage; no water must stand after a shower.

For their first food I have found nothing better than that made by my old receipt—into half a pint of fresh sweet milk placed in a shallow pan over the fire break two eggs, and stir the mixture as it simmers slowly until it thickens and assumes the consistency

of jelly. Poult out this before they will touch anything else, and begin to strengthen and grow immediately. After a week or so thicken the custard with the crumb of soft egg-bread, and when the poult is two weeks of age the custard may be left off and the egg-bread simply broken into the pan of fresh milk and allowed to simmer and dry out. This food is very palatable as well as nourishing, and not only young turkeys but all young fowls that I have ever tried to raise were remarkably fond of it.

When then weather continues cold and rainy, young turkeys as well as chickens are very subject to diarrhoea, in that case it is well, in addition to the foods above described, to give some very dry foods, something of a nature to counteract such tendencies. Cracker crumbs are excellent, or stale white bread of any kind dry enough to crumble, and it is a good idea also to sprinkle over it black pepper. Boiled sweet milk is good for looseness of the bowels, and curds later on; tender onion-tops chopped fine may be given at all times, though after the turkeys are large enough to run out they prefer to select their own green food. Boiled wheat is excellent, but the little things are afraid of it at first and stand around and say "put" "put," as though they had found a snake. The mother-hen, however, generally remembers the taste of the wheat, and her evident relish of it soon emboldens her timid brood. When three weeks of age, some dry wheat or wheat screenings may be given, but I would never let so young a fowl peck its crop with raw, dry grain, which is likely to swell, ferment, and cause indigestion, followed by cholera. Whatever is given should be of good quality, sound and sweet; better miss a meal altogether than eat anything that is stale or sour. A small quantity of lean meat may be mixed with the broken bread scraps, but remember that young turkeys are very different from chicks—they are very dainty in their eating, do not like rich, greasy foods that chickens dote on, as bread moistened with gravy or dripping, and the like. Such things are not good for them, either, as I have known of their owners learning to their sorrow.

As they grow older they become great grazers, and a flock will completely destroy a cabbage or turnip patch, as I heard a gardener lately lamenting almost with tears. I told him to sow them some turnips—they certainly would be a cheap food, and exceedingly wholesome; but he seemed to think that there was no need of raising anything especially for their benefit—the turkeys went where they pleased and helped themselves. But it is just as in keeping any other stock—one must have suitable fences for restraining them, else a large flock will become a nuisance.

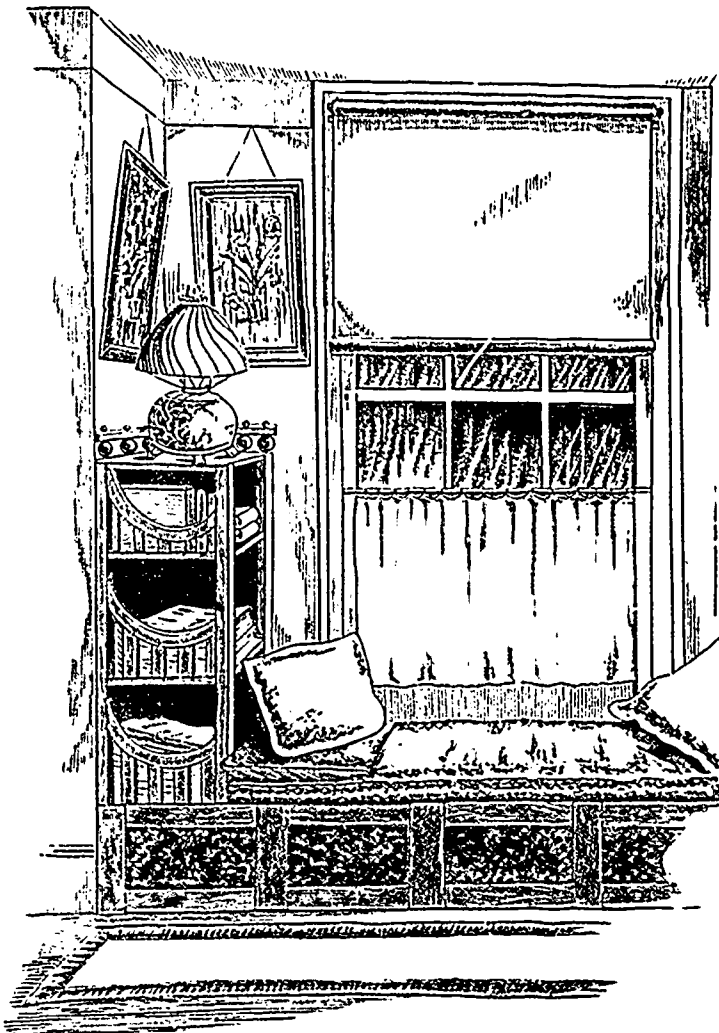
A small enclosure is certainly a great convenience in such a season as the present; then one can let them out of the coop between showers, if it is only for half an hour. Poultry netting is better for this purpose than close palings, as it does not obstruct the circulation of the air, and being almost invisible, the fowls do not know where it stops—so they are puzzled, and seldom attempt to fly over. This netting comes in different widths; the last I got was four feet, and forms an excellence fence, with a base-board at bottom. Pleasant shade they must have in their little yard, and fresh green grass, a shallow pan of clean water, and food offered every two or three hours. When ten days or two weeks old, the hen and her

brood may be let out of the small yard for a while every day; turkeys dearly love their liberty, and they should have it, too, in all pleasant weather. The hens, as well as their keeper, look forward with delight to the time when they can lead their broods afield in the early morning and be out until evening, catching bugs and grasshoppers in meadows and pasture fields, till the midday sun sends them for rest and repose to some cool, shady woodland, beside a fresh stream of running water.

Since beginning this article a few days ago, the weather has cleared up beautifully, the men are out saving hay, and the machinist is putting up a reaper, getting ready for wheat harvest. The spirits of the farmers have risen with the mercury in the thermometer, and I wouldn't care if my flock of little turkeys were a good deal larger than it is.

A FARMER'S DAUGHTER.

Cultivator.



Domestic Economy.

A COSY CORNER.

In very many houses there is a recessed window, such as is shown in the illustration, while in many other houses such a window could be made by arranging a heavy piece of furniture or a screen at one side of it, which would permit the making of just such a cosy corner as is figured herewith. The illustration however, may be taken as a suggestion of a restful corner, rather than as a design to be rigidly followed, the design being capable of elaborate or very simple treatment.

A low wide seat is constructed beneath the window, with drawers beneath it, where the panels are shown, if it is desired. The top has a soft cushion, and numerous soft pillows are provided. At one end is a cabinet for books, papers, magazines,

fancy works, drawing materials, or any other articles that one may desire to have at hand when occupying this cosy window seat. The top has a broad space for a lamp for evening use. A push curtain will soften the light, while still admitting a large share of it. There are numerous spaces and corners about a house that can thus be made attractive and convenient, if one has a little ingenuity, taste and invention.

SOME SUMMER SOUPS.

As in winter we crave heavy soups, so in summer do we prefer light ones, such as the different cream and vegetable soups. In giving these receipts it is not intended that the busy housewife shall add to her cares by providing a course of soup for each day in the week. If you have soup only once a week and then make it the principal feature of the meal, it is still pleasant

to stick. Then add three pints of stock and simmer very gently, so as not to reduce it, for one hour. If you have a few spoonfuls of cooked string beans, peas or a paragon on hand, they may be added with good results. A cupful or more of any one of these vegetables that may remain from the dinner of the day before, added to a quart of broth and allowed to get hot, makes a delicious soup. (1)

HERB SOUP.—The very youngest sprouts of dandelion, sheep's sorrel and nettle, well washed in cold water, chopped fine and simmered in broth for thirty minutes, make a soup that is refreshing as well as medicinal. Finish it with butter the size of a hickory nut cut in bits and rolled in flour, and half a pint of hot milk or cream.

GREEN PEA SOUP.—A very weak broth is often all that is necessary in many of these vegetable soups. The trimmings of a steak or a dozen chops, with the bones of the same after they have come from the table, if boiled for a couple of hours with water and vegetables, will make a quart of broth. In this boil half a pint of green peas, (2) a handful of spinach and some sprigs of parsley, until tender; press through a sieve; return to the fire: add a teaspoonful of flour wet with cold milk, a bit of butter and a cupful of hot milk or cream.

CARROT SOUP.—Cook in salted water two cupful of peeled and sliced carrots, half a cupful of turnip and a leek; when done, press through a sieve with a potato masher and add to a quart of broth. Whenever the pulp of vegetables is used, a teaspoonful of flour wet with cold water should be added to the boiling broth to keep it from setting. Milk, or half milk and half cream, may be used instead of broth, and will form a cream of carrots.

Rice alone or rice and Savoy cabbage boiled and pressed through a sieve and added to boiling broth or milk with a seasoning of butter, pepper and salt, makes a nice soup. Rice or cabbage left from dinner may be so utilized.

Okra, which grows so well in our northern gardens, is one of the most valuable additions to a soup. Sliced with an equal quantity of tomatoes and cooked for thirty minutes, then reduced with beef, veal, or chicken broth, it gives the plain Georgia gumbo soup with which plained boiled rice is always served, the hostess placing a spoonful of rice in each dish before adding the broth.

Much has been said in the COUNTRY GENTLEMAN regarding plain living, with which I for one heartily concur. But plain living does not necessarily mean monotonous living. Good housekeepers have a way of systematising things by which they may place a variety of nutritious and well-cooked food on their tables without appreciably increasing their labors. The leg of lamb that is always roasted, though you have it but thrice in as many months, is still monotonous. If, on the contrary, it is roasted one time, boiled and served with caper sauce another, and pickled and boiled a third, you have three really different dishes with no more work on the part of the cook.

ALICE CHITTEMEN.

CLEANING FEATHERS.—Is there any remedy for disagreeable odor from feather pillows? I bought mine at a

(1) A good recipe for a most delicious soup. *Expe to crede.*—Ed.

(2) Some very young pease *unmashed* should be added, with a little mint, and a dash of white sugar.—Ed.

to have a change. There are times during the summer (and strange to say they are often on the hottest days) when it seems as if nothing will satisfy one so much as a refreshing soup.

It is not necessary at this date to instruct housewives in the mystery of stock-making. For a casual soup there need be no mystery. Cooked or uncooked meat and bones simmered with vegetables and strained gives stock from which many different kinds of soup can be made.

JULIENNE.—Peel and cut into long, narrow strips one young, medium-sized carrot, one fourth of a new turnip; about a quarter of the tender part of a small Savoy cabbage, one leek, (1) two stalks of celery or a bunch of the young tops and a few leaves of lettuce. Put these in a stew-pan with a tablespoonful of butter and simmer for thirty minutes closely covered, adding a very little water if it inclines

(1) Onions won't take the place of leeks in soups. Ed.

well established house in New-York City, and the firm say that it is because the feathers are not properly cured (they have done all in their power to help me). If any one can aid me I shall be most grateful. K. B. R. [A similar inquiry was answered some years ago as follows: "Put the loose feathers into a tub of hot soap-suds and wash them thoroughly through several waters using no soap in the last, and ran through a clothes-wringer each day, then spread in a clean, dry room, and stir frequently until perfectly dry."]

**PURE PEACH JELLY**—The following method of making this jelly was discovered by accident. A certain good wife was too hurried one day while canning peaches to pare them. She wiped them with a damp cloth, halved them and dropped them into the boiling syrup. When the canning was done, there was a glassful of surplus juice which when cold, to the lady's surprise, was a firmer jelly than she had ever obtained before from this fruit. Now, when a plentiful peach year occurs, this lady makes this jelly by cutting up the peaches with their skins on, and boiling them to a pulp in water, then straining and treating like any other jelly. J. M. M. *Jacksonville, Ill.*

**CANNING ASPARAGUS.**—After reading of canned asparagus and seeing it sold in the stores, I thought I would try to do it. I have had good success so far. I cut the stalks in inch lengths, beginning at the bottom and leaving two inches in the head piece. I then cooked the same as for the table, only slightly salting it. After it has cooked 25 or 30 minutes I put it in Mason's jars the same as fruit. After the jars are sealed up, and placed on their heads until cold, I put them in the collar.

I have discovered that asparagus makes a good sweet pickle or salad, alone or with peas, either early peas shelled out, or young sugar peas in the pods. The asparagus and peas may be used in equal quantities, or if desired, more of one than the other, whichever is the most plentiful. I take 1 lb. of granulated sugar to a quart of vinegar, spice to taste, say 1 teaspoonful of cloves, 2 of cinnamon, 1 tablespoonful of aniseed, and 2 quarts of the cooked asparagus, after the water is all drained off. I put the spices in little sacks and drop in the vinegar and sugar to boil a minute or two, then add the cooked asparagus. When it has come to a boil I can it for use. E. S. A.

### CLEANLINEES.

SOME men are born to power, and some to wealth, and some become leaders of thought, exponents of what is best in art and nature, and even of the lesser concerns of domestic life. Among the latter there is no greater authority than Mr. Ruskin, and we may therefore be excused for quoting his definition of what a true lady should be: "A princess, a washerwoman—yes, a washerwoman! to see that all is fair and clean, to wash with water, to cleanse and purify wherever she goes, to set disordered things in orderly array—this was a woman's mission."

A good many women of late have been finding their mission in making all clean and pure; for the spring

cleaning has been upon us, and much of the dirt and disorder accumulated through the winter has been brought to light, and consigned to the limbo of the dust-bin. So far well, but this intermittent cleanliness is not quite what our author means, neither is it what will keep our households—far less ourselves—in that state of thorough purity which it should be the ambition of every true woman to attain. For that Mr. Ruskin meant personal no less than domestic cleanliness is evidenced by the further statement—"I inherited to the full my mother's love of tidiness and cleanliness, and in Switzerland, next to the eternal snows, what I most admired was her white sleeves."

It is one thing to make clean; it is quite another matter, and even a more crucial test of capability, to keep clean; and where the former is, strictly speaking, an affair of the hands, the latter may be said to be a motion of the mind—that is, in the one case, the hands must carry out the designs of the head, but, having done so, a woman, by a mental effort, may avoid that slatternly way of going about her work that ends in a general muss all round. It is here, also, that practice and training come in. We are not all gifted by nature with the bumps of order and cleanliness. There are *trabs* among the classes, as well as among the masses, and when such a one is found in the drawing-room, it may pretty certainly be predicted there will be another to match in the kitchen. In a late interview with Mr. Buckmaster, of Kensington fame, he told the writer that on a certain occasion, being invited to breakfast by a lady of title living in Park Lane, she, with the assistance of a single domestic, cooked the whole meal for a party of fourteen in a little recess off the dining-room, and put it on the table in the finest order. Similarly, a certain instructress in a cookery class lately told her scholars that, given a gas-stove and a deal table, she could cook in any drawing-room without other sign of disorder or speck of what has been aptly called "matter misplaced." This is as it should be, and what every woman, be she servant or mistress, should aim at. To do so effectually the mind must be kept in check, and not allowed to stray away to something foreign to the matter on hand. Wandering thoughts make witless work; spilled water, spots of grease; dirty finger marks and dusty furniture all come from inattention to detail and want of that concentration of thought which will always be found to accompany a love of order and cleanliness.

A. L. O. S.

### CHOICE DISHES OF VEGETABLES.—II.

If one is at a loss for inexpensive ways of raising the standard of living and making real improvement in the home table, few things will go so far at slight cost as putting more stress upon really choice dishes of vegetables. These are luxuries doubly prized by summer guests from the cities, because hardly possible in town, for tender vegetables, brought immediately from a good garden, are quite another thing from the results of oven good marketing.

With the full benefit of the abundant variety that we may have at midsummer, the list of choice dishes is a very long one. Many of these are

suitable for an elegant lunch or dinner, and are sometimes served singly as a separate course.

**STUFFED TOMATOES**—Served with the accompanying rich sauce, make a handsome entree; they are, however, equally good with roast veal or lamb, beef or chicken. Cut the stem end from eight or ten fine large tomatoes of perfect shape, and with a spoon remove most of the interior, leaving a firm shell. Drain the juice from the pulp and mix it with a cupful of finely minced cold meat, which may be veal or chicken, with a slight flavoring of ham or bacon. Add also a cupful of fine bread crumbs, a beaten egg, salt, cayenne and fine herbs to taste. Fill the shells with this mixture, crumb over, and bake for half an hour.

For the sauce, peel six or eight tomatoes, with a chopped onion and a bunch of sweet herbs or parsley, and stew gently until very thoroughly cooked. Strain, and thicken by stirring together butter and flour in a saucepan until it takes a gold color; the quantity used will depend upon the consistency of the sauce, which must be that of cream, thick enough to mask a spoon. A glass of sherry added is considered a great improvement.

The tomato may be cooked in so many ways that it is one of the most indispensable of vegetables. With roast beef, an excellent plan is to wash medium-sized tomatoes and cut out the stem end, sprinkle with salt and pepper, and bake in the pan with the meat.

**SCALLOPED TOMATOES.**—For this dish the tomatoes may be either whole or sliced, as preferred, first scalding and removing the skin. Arrange in a pudding-dish with alternate layers of bread crumbs, seasoning each layer with butter, salt and pepper, and a few mushrooms, or a dash of grated onion, parsley or other piquant flavoring may be added to taste. Cover with crumbs and liberal butter, and bake slowly for a full hour. Rice, boiled and well-drained, may be substituted for the bread crumbs.

**BAKED EGG PLANT.**—Egg-plant or summer squash may be varied from the usual mode by cooking somewhat similarly. Pare and cut in dice or slices and stew in salted water until tender. Drain thoroughly and season with plenty of butter and a pinch of parsley or sweet herbs if liked, or a mere suspicion of onion or garlic may be used. Crumb a baking-dish, first freely buttered; pour in the vegetable and cover with crumbs. Dot with butter and brown quickly in the oven.

**PURÉES.**—Peas or beans (preferably Limas) make a dainty dish when served in a thick purée of the consistency of soft mashed potato. Put through a colander or strainer when thoroughly tender, with enough of the water in which they were boiled to moisten, or a little cream may be added. Butter, salt and cayenne should be added to taste, and for beans a slice of ham may be boiled with them as well as a bayleaf and a slice or two of onion. Be sure to make very hot before serving. High and yet delicate seasoning is a requisite for dishes like this.

**FRITTERS.**—The frying kettle of deep (1) fat is one of the indispensables for a rich and varied use of vegetables in fine cooking. Dainty fritters of many kinds form a whole class of choice dishes. Corn is perhaps the most generally used, and corn fritters

(1) Oh! how different is an egg-and-bread-crumbed fish fried in deep fat to a fish sauté in a shallow pan covered with butter!—Ed.

belong to the remembered summer delights of childhood. To begin with, there is an art in shaving off the tops of the kernels in each row of the tender sweet corn and pressing out the contents with the back of the knife, so as to leave the skin of the kernel empty upon the cob. Then the eggs, milk and flour in a judicious mixture, smooth as cream, with a small spoonful of baking powder sifted with each cupful of flour. It is difficult to give precise quantities, as the corn varies so much, but the batter must be moderately stiff, and trial will decide whether the exact degree of stiffness is attained. It must not spread too much, but puff out to a dainty lightness. The only seasoning required is salt and a little white pepper. Drain and serve very hot.

Cauliflower makes a delightful and more unusual fritter. First boil until partially tender, then plunge in cold water and break up into sprigs. Dip each in a thick white sauce to coat it, and then get cold. Then dip again carefully in fritter batter and fry a delicate brown. Slices of beet-root may be used in the same way; and cucumbers, parsnips, celery, and various other vegetables may be used for this purpose.

DOROTHY,

(Cultivator.)

FROM F. & H. COOKS.

**Cup Pudding:** Mix 1 cup of sweet milk,  $\frac{1}{2}$  cups of flour, a little salt, 1 teaspoonful of baking powder and beat it to a smooth batter. Butter 5 cups and drop in each cup a spoonful of the batter, then a spoonful of any kind of fruit you like with as little juice as possible, then another spoonful of batter. Set them in a steamer over a kettle of boiling water. Let them cook from 20 to 30 minutes. Serve with sugar and cream or hot dip if preferred.

**Pork Cake:** One pound of salt fat pork chopped fine,  $\frac{1}{2}$  pint boiling water poured over it, 1 cup molasses, 2 cups sugar, 1 teaspoon of saleratus, 1 teaspoon of cloves, nutmeg and cinnamon, a little salt, flour to make it as thick as common cake. Raisins and currants may be added if wished.—[Sea Weed.]

**Delicate Pudding:** One cup of granulated sugar, 1 cup sweet milk, 1 egg, butter the size of an egg, 2 cups raisins, 3 teaspoonfuls baking powder, and flour enough to make it the consistency of cake. Have the raisins well dredged with flour and add them last. Steam in a greased pan for 2 hours.—[Mrs. M. Garner.]

**Doughnuts:** One egg, 2 cups of sour milk, 1 cup of sweet milk,  $\frac{1}{2}$  cups of sugar, a little nutmeg, 1 teaspoon salt, 1 tablespoon of saleratus sifted dry into some flour. Stir all together and pour out on a board in a mass. Do not roll, and the dough must not be stiff. The great secret of good success is in having the dough just as soft as it can be handled. Cut with a knife and pinch the ends together to form a ring. There is no shortening except the cream that belongs to that amount of milk. Fry in fat composed of lard and fried out suet; equal parts of each, which is much better than all lard and more economical. You can buy suet at  $2\frac{1}{2}$  cents a pound, then try it and it is ready for use. Sometimes I use buttermilk in place of the sour milk, and then use sweet skim-milk; or put in an egg, if you do not use skin-milk instead of the now. [Cousin Jeminy.]

**SATIN WOOD PIANO.**

Another very fine piano is just now exhibited in the windows of Mr. L. E. N. Pratto's ware rooms, No. 1676, Notre-Dame Street. It is a concert upright Grand in figured Satin Wood, natural color.

The beauty of the finish and the figures of this wood are beyond description. It has somewhat the appearance of golden watered silk and it is very scarce. There are only two pianos in this wood and lovers of the beautiful and rare should not miss the opportunity of examining it.

As to the artistic qualities of the instrument, it is only necessary to mention that it has been manufactured by Mr. L. E. N. Pratto, in Montreal, with valuable improvements contained in no other pianos.

**MUSIC AT THE CONVENTION.**

The Musical Committee of the Christian Endeavour Association have selected a *Dominion* Organ, with two manuals and pedals, from the piano rooms of Mr. L. E. N. Pratto, No. 1676, Notre-Dame Street, for the religious meetings in the Drill Shed, in July last. The instrument has rendered good service and was very much admired.

**FOR OVER FIFTY YEARS**

AN OLD AND WELL-TRIED REMEDY.—Mrs. Winslow's Soothing Syrup has been used for over fifty years by millions of mothers for their children while teething, with perfect success. It soothes the child, softens the gums, allays all pain, cures wind colic, and is the best remedy for Diarrhoea. Is pleasant to taste. Sold by Druggists in every part of the World. Twenty-five cents a bottle. Its value is incalculable. Be sure and ask for Mrs. Winslow's Soothing Syrup, and take no other kind.

**CASH FOR FEATHERS**

We are paying cash for all kinds of feathers. JUNE is the month when farmers should pluck their geese, as otherwise the feathers are lost. Send the samples of what you have and we will quote you the best prices for them.

**McIntosh, Williams & Co.,**  
10 ST. SACREMENT STREET, MONTREAL, P. Q.

**TO FRUIT GROWERS**

The attention of our readers is called to the advertisement of the Blymyer Iron Works Co. of Cincinnati, Ohio, which appears in this issue. Their Zimmerman Evaporators for Fruits and Vegetables have for many years been looked upon as the Standard Machines. Parties in want of Evaporating machinery will do well to write for their catalogue.

**CONSUMPTION CURED.**

An old physician, retired from practice, had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma and all Throat and Lung Affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints. Having tested its wonderful curative powers in thousands of cases, and desiring to relieve human suffering, I will send free of charge to all who wish it, this recipe, in German, French or English, with full directions for preparing and using. Sent by mail, by addressing, with stamp, naming this paper.

W. A. NOYES, 220 Powers' Block, Rochester, N. Y.

**EASTERN TOWNSHIPS HOME**

OF THE

**AYRSHIRES.**

**A. McCALLUM & SON**

IMPORTERS AND BREEDERS OF

**Ayrshire and Berkshire Swine**

DANVILLE, P. Q.

Have always on hand and for Sale.

Young Stock of the Most Approved Breeding for deep milking properties.

PRICES REASONABLE.

**YOUNG PIGS FOR SALE.**



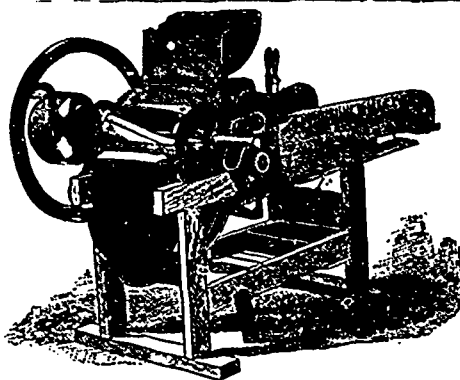
A Portion of the Ponthill Nurseries.

**AGENTS WANTED**

For Agents for the PONTBILL NURSERIES, the Largest, Longest Established, Most Reliable and BEST KNOWN NURSERIES in Canada. Over 700 acres under Cultivation. Good pay, regular and constant employment to right men, no drones or played out tree agents need apply. Elegant outfits. Address STONE & WELLINGTON, Temple Building, Montreal, J. W. BEALL, Manager.

**Twenty-Five Dollars in Gold.**

We will be pleased to pay any one who will send us a more delicious bush bean than the Warren, or a better pea than the Excelsior. You can't afford to raise the American Wonder, when the Excelsior, as good, as early and nearly as dwarf, bears (see Rural New Yorker), larger peas, larger pods, and many more of them. Our Catalogue (sent FREE) on pages 3 and 27 tells all about them. J. J. H. GREGORY & SON, - - - Marblehead, Mass.



Hay, Straw, Corn and Ensilago cutters of all sizes with or without Elevators Corn "Planters", Corn "Shellers", Churns, Seeders, Cultivators, Harrows Ploughs, all and every kind of Agricultural Implements used on or about a Farm. Also all kinds of Carriages, Waggon, &c., &c. All new and Improved Implements are found first in our stores.

Farmers you should see the new Spade Harrow, the best tool to pulverize the soil ever made.

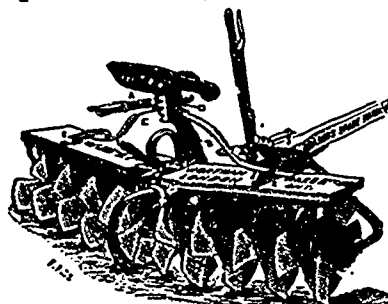
Get our Catalogues and Prices.

Special attention paid and extra discounts given to orders by mail.

LATIMER & LÉGARÉ, Québec, Quo.

LATIMER & BEAN, Sherbrooke, "

R. J. LATIMER, 592 St. Paul Street, Montreal.



**TO DAIRYMEN  
BABCOCK TESTERS**

Whey Gates Centrifugal Separators

**DANISH AND ALEXANDRA STYLES**

**POWER AND HAND**

WRITE FOR CATALOGUE

**J. DE L. TACHE**

**MOUNTAIN HILL, QUEBEC.**

**FARMERS' CENTRAL SYNDICATE OF CANADA**

**30 ST. JAMES STREET, MONTREAL.**

To the 1,200 members of the Central Syndicate and to the Agricultural Clubs of St. Jérôme, Ste. Mélanie, Ste. Julie of Verchères, Ste. Adèle, Grondines, Bécancourt, St. Jacques l'Achigan, St. Vincent de Paul, St. Alphonse de Joliette, &c., &c.

Be so kind as to let know the Central Syndicate as soon as possible the quantity of pressed hay that you will have for sale at the end of the season before signing any contract or pledge your word.

The Syndicate is under communication with the Central Syndicate of Paris and some of the largest hay importers of Europe. It will let you know of any opportunity of selling your hay directly without expenses.

Do not loose a minute and send any particulars to the

**Farmers' Central Syndicate of Canada**

30, ST. JAMES STREET.

DISCOUNT ON MOWERS, RAKES, BINDERS AND HARVESTERS, 5 to 25 PER CENT.

# The Haras National Company

UNDER THE AGREEMENT WITH THE PROVINCE OF QUEBEC TO PROVIDE AGRICULTURAL SOCIETIES WITH STALLIONS.

**NORMAN, PERCHERON, BRETON AND CLYDESDALE STALLIONS**  
PROFITABLE TERMS.—SALE OR RENT.

45 Prizes and Diplomas for 1891 and 1892 in the Provinces of Quebec, Ontario and Manitoba.

Stables at Outremont, near Montreal. Offices: 30 St. James St., Montréal.

Season of 1892 : Number of services :

Napierville : 70.—Gaspé : 107.—Missisquoi : 79.—Vaudreuil : 37.—  
Chicoutimi : 37.—Three-Rivers : 55.—Bellechasse : 59.—  
Montreal : 104.—Ottawa : 106.—Nappan : 96 —  
Brandon : 39.—Indian Head : 63—  
Agassiz : 27.

Percentage of colts born in 1892 from the Haras National Stallions 70.74 %  
Percentage of colts, 1892, Haras of Franco . . . . . 54 %  
Percentage of colts, 1892, Haras of Germany . . . . . 53.30

## AUZIAS-TURENNE,

Man. Director.



### PROPERTY FOR SALE OR TO EXCHANGE

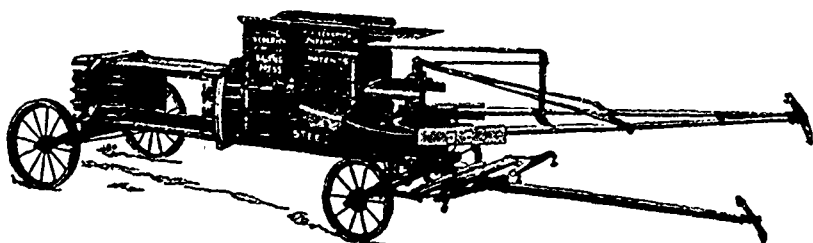
Situated in one of the finest and most salubrious localities in the island of Montreal, on the south-west part of the mountain, in the municipality of Notre-Dame-de-Toute-Grâce : containing 24,500 feet in superficies. To be given in exchange for a property lying on some well situated shore and in the neighbourhood of a railroad. For further information please address to

ALFRED DUBORD,  
No. 1708 Notre Dame Street.

### The Huntingdon Agricultural Implement Works

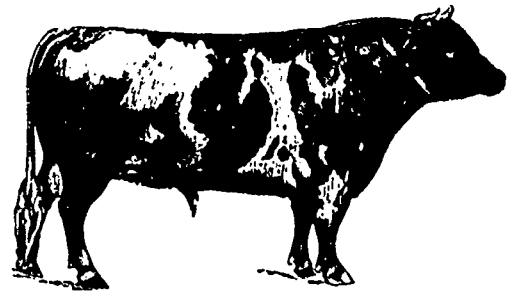
Having bought out Messrs. P. K. DEDERICK & CO'S. Branch Factory in Montreal with Plant and Stock and move to our works here. We are now prepared to Manufacture and Sell under Special Royalty

**P. K. DEDERICK'S PATENT HAY PRESSES,**  
Made in every style in Wood Frame and Steel Cases. Also Repairs from their original Patterns.



Having also bought out the Dominion Wire Manufacturing Co's Bale Tie Plant with the transfer of that portion of their business, we are now prepared to supply all Styles of Bale Ties made from the Best Steel Wire.

**BOYD & CO.,**  
Proprietors, Huntingdon, Que



### BEAUBIEN FARM, OUTREMONT, MONTREAL. 25 PRIZES Montreal Exhibition 1891 92

To Societies of Agriculture and Farmers desirous to improve their stock, we offer pure bred registered

**AYRSHIRE CATTLE, Bulls, Cows, Calves, all choice Stock**  
PURE BRED REGISTERED

**BERKSHIRE AND IMPROVED CHESTER WHITE**

The Chester White is known to be invulnerable to pigs' cholera.

**Pure Bred PLYMOUTH ROCK—Improved breed COOKS, HENS, CHICKENS, EGGS.**

HOT-BED PLANTS OF ALL KINDS SHIPPED TO ORDER BY EXPRESS C. O. D.

APPLY TO **JOSEPH BEAUBIEN, 30 St. James, Montreal.**

## FOR SALE

### A SPLENDID FARM AT MONTEBELLO

COUNTY OF OTTAWA, P.Q.

At half a mile from the C. P. R. Station, distant two and a half hours from Montreal, and one and a half hour from Ottawa. This Farm consists of 200 acres of an excellent soil and contains a Barn-Stable, a Pig-Sty, Silos, a Dairy. All these buildings are in First Class condition and can compete with the best in the Province.

BESIDES.—10 Heads of Cattle (Ayrshires, Canadians and crossed). ALL GOOD MILCH-COWS. Chester White Pigs. A Stallion St. Laurent's Bred Farm Horse. Binding and Mowing Machines, &c., &c. Cream Separator. **MILK TRADE WITH MONTREAL PROSPEROUS.** Apply to

H. BOURASSA, Montebello, P.Q.

### Montreal Exposition Company

## GRAND PROVINCIAL EXHIBITION

**Agricultural and Industrial Fair**

### 4th to 9th SEPTEMBER, 1893

**MORE EXTENSIVE! MORE ATTRACTIVE!!**

### GRAND OPENING, MONDAY, 4th SEPT.

**LABOR DAY! CIVIC HOLIDAY!**

All Departments complete.

Military and other Bands.

**GREAT SHOW OF LIVE STOCK!** Horses, Cattle, Sheep, Swine, Poultry.—Machinery in motion—Agricultural, Mechanical, Industrial, Natural and Dairy Products. **GORGEOUS HORTICULTURAL SHOW!** Plants, Fruits, Flowers.

**County of Hochelaga Show in Connection!**

The IMPERIAL JAPANESE TROUPE in their unrivalled performances.—Grand Pyrotechnic Display, the BURNING OF MOSCOW!—Magnificent Fireworks.—Grand Electrical Illustrations.

H.M.S. "MOHAWK" will be in the Harbour open for inspection. Reduced Passenger and Freight Rates.—Working Dairy Silo.—Highest Premiums.—Cheap Excursions.—Unrivalled Attractions.—New Electric Street Railway.—Cheap Fares.—Direct to Grounds.

Open Day and Night.

**ADMISSION - 25c.**

**S. C. STEVENSON,**

76 St. Gabriel Street, MONTREAL.

Manager and Secretary.