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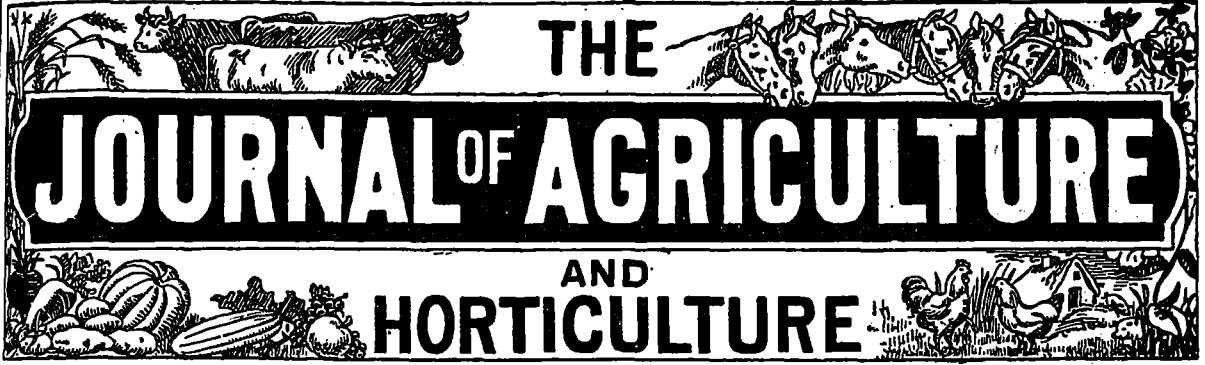
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Table of Contents

THE FARM

Notes by the way	337
Dairy-Shorthorns.....	337
Lambs	338
The college and the farm.....	339
The "New Century".....	340
Hampshire-downs.....	340
Markets in England.....	340
Farm book-keeping.....	340
Fertilisers.....	341
Clover-silage.....	342
Woburn field-experiments.....	342

HOUSEHOLD MATTERS

Bargains	343
A waist.....	343
Recipes	344

THE GRAZIER AND BREEDER

Pedigree in farm-stock, W. R. Gilbert on.....	345
Scarcity of prime fat cattle in England.....	346
Look out for the cow.....	347

THE DAIRY

Lloyd on Cheddar-cheese.....	348
An ideal milk-farm.....	350
Danish dairy-farmers.....	352
Unprofitable dishonesty.....	352

THE GARDEN AND ORCHARD

Spring.....	352
Seed.....	353
Germination.....	354
Agricultural and horticultural education.....	354

THE POULTRY-YARD

Something about eggs	355
Don'ts.....	356

PUBLIC ADDRESS.

Agricultural associations.....	356
--------------------------------	-----

SWINE

Dominion Association.....	358
---------------------------	-----

The Farm.

NOTES BY THE WAY.

Dairy-shorthorns.—As we have frequently explained, in this periodical, the favourite breed of cattle among dairy-farmers in England is that commonly known there as the "Dairy-shorthorn." There are, of course, certain local exceptions, such as the Herefords, in the West-Midland counties, the Devons, in the western parts of Somersetshire, in Devonshire, and Cornwall, together with a few—very few—remains of the old "Longhorns," in Northamptonshire. But, practically speaking, the almost universal cow in the dairy-counties is the dairy-shorthorn.

The origin of this most valuable breed of cattle seems to be lost in the dark ages. Long before any attempt was made, by Bakewell or the Collings, to improve the herds of Great-Britain, a race of cattle had existed in the valley of the Tees, indigenous, it was supposed, to that and the adjoining districts, and technically known as the Teeswater.

When Mr. Thomas Booth determined to breed cattle on his farms at Killerby and Warlaby, (1) he, in or about 1790, found his original foundation in these Teeswaters. Some improvements had been made in the race, and their then representatives were found to be wide-backed, large framed cows, possessing, with good average milking capacities, a great general tendency to fatten.

(1) *By* (Norse and Danish) originally meant a single farm with its out-buildings, precisely what is meant by the Scotch word "toun." Later, it conveyed the idea of a village. Ed.

By degrees, this Teeswater stock became dispersed over the greater part of England; the best specimens are still to be found in the Northern counties of Durham, Northumberland, Cumberland, Westmoreland, and parts of West-Yorkshire, though now, as we said before, the whole of England is permeated by the breed, particularly in the neighbourhood of the larger towns. The *milkmen*, who used to supply London, kept no other cow, and we remember well seeing at Brighton, in 1852, a herd of 18 dairy-shorthorns, every drop of whose milk was sold throughout the year at 8 cents a quart, kept by a dealer who had bought them at Darlington fair,¹ Durham, and perfect pictures they were of useful dairy-stock, yielding from 18 to 22 quarts of milk a day, and when the end of their service at the pail arrived, ready to go to the block without any expensive preparation.

will be noted that the non-pedigree Shorthorns come out at the top of the list, although very closely shadowed by the mixed class. The latter, however, included the two fine cross-breeds Nancy and Buttercup. The Jersey class came third in order of merit, and proved too good in the analyses for the pedigree Shorthorns and Red Polls, which duly represented the oldest cows in the classes. The Ayrshires and Kerries did not do badly for small cattle, but the Guernseys made a poor exhibition, their average of milk and points being far behind the others. On the whole the Shorthorn and Jersey breeds seem to lead the way in these contests, and there does not appear to have been much to choose between them of late years, when their various merits both in the milk and butter trials have been fairly gauged. (1) A. F. P. Chiddingfold, Surrey.

	2 days milk.	Average each.	Points gained.	Average points.	Average age.
	lb.	lb.			y. m. w.
4 pedigree Shorthorns.....	354.9	88.7	366.5	91.6	8 2 0
4 non-pedigree Shorthorns.....	472.9	118.2	505.3	126.3	6 6 0
4 Jerseys.....	323.0	80.75	425.3	106.3	6 3 2
4 Guernseys.....	222.3	55.57	298.3	74.58	5 7 1
4 Red Polls.....	373.1	93.3	369.7	92.42	7 8 0
2 Ayrshires.....	215.4	107.7	223.8	111.9	5 9 0
3 Kerries.....	245.0	81.6	254.9	84.97	6 2 1
4 mixed breeds.....	456.1	114.0	483.6	120.9	7 0 2
Means.....	332.8	22.48	366.0	101.1	6 7 3

Now, that the above-named cattle have transmitted to their descendants the valuable dairy-qualities that rendered themselves so celebrated in their day, may be seen in the following account of the milking-trials, at the London Dairy-show, December, 1899. It will be observed that, our lot, the "4 non-pedigreed Shorthorns," came out at the head of the list.

THE MILKING TRIALS, LONDON DAIRY
SHOW, 1899.

There were eight classes for competition in the above, each of which had four entries, except Classes 6 and 7 (Ayrshires and Kerries) with two and three respectively. Taking them in order of classes, with regard to quantity of milk, points, and age, we have the following results:

Without making any individual distinction, it

Lambs.—The lambing season will soon be upon us. Judging from what we have seen during the last four years in Montreal, many farmers are turning their attention to the breeding of early lambs for that market, and we are glad to know it, though we heartily wish that they would not kill the lambs so young; no lamb should die under ten weeks old, and twelve weeks is a better age. Like veal, lamb too young is soft, *pappy* meat, particularly if fed on food devoid of a sufficiency of protein.

The first thing to be done in the preparation for early lambing is to get the lambing-pens or sheds into good order. Though lambs after they have attained the age of 8 or 10 days will stand any

(1) But how about the last scene of the play; the butcher's block?

moderate degree of cold, *so long as they are kept dry*, during the first few days after being born they should be carefully housed.

At a fortnight from birth, castrate all the males intended for market. The too frequent habit here, particularly among the French-Canadians, of allowing the male-lambs to run uncastrated with the ewes until they are sent to the butcher in the fall, cannot be too severely reprobated. By the time a ram-lamb is 3 months old, the natural desire for the female begins to be felt, and thenceforth the ewes of the flock have no peace, the lamb himself does not thrive, and what flesh there is on its bones becomes red in colour and strong in flavour. After castration, the tails of the lambs (ram and ewe) should be docked: the hind-quarters look all the better for it, as regards the lambs for immediate slaughter, and, as regards the stock-sheep, they will be all the safer from the fly, etc., during the summer.

As soon as the lamb shows any signs of being inclined to eat, which may be known by his picking at any locks of hay or straw about the pen, a division should be made to separate the pen into two parts, in which division a *creep-hole* should be cut, large enough to allow the lamb to pass but small enough to keep back the ewe. In the separated part of the pen, a trough should be placed, in which should be put crushed pease and oats, clover-hay chaff, and if the pen is littered with pea-haulm, it will be none the worse.

But we have said nothing about the food to be given to the ewe, all this time. Our own practice, when we bred early lambs (Hampshire-downs, of course) for the London market, was to select the oldest ewes of the flock for that purpose, and to fatten, as it was technically called, both "lamb and dam." The ewes were put to the ram about the first week of September, having been previously fed on *rape* for three weeks, or so, to bring them "into season" all together, so that the lambs might be dropped pretty well about the same date, viz., the first week in February; this will save the farmer, or his shepherd, if his flock is large enough to keep one, a good deal of trouble and worry, as nothing is more annoying than to have the lambing-time spread over a long period.

For the first few days after parturition, the ewe should not be too lavishly supplied with food.

A bran-mash, with a few oats in it, cut roots in moderate quantities, and a little meadow-hay, if there is any handy, will do her well. By degrees, a trifle of linseed-meal, a few pease, and clover-hay-chaff may be added, but not too much, until the lamb has begun to eat freely from its trough, when the ewe may be fed liberally, attention being paid to its fæces and general behaviour, for no animal shows a tendency to suffer from any pain or complaint more freely than the sheep, the drooping of the head and particularly of the ears being infallible signs of something being wrong. However, as a general rule, if the ewe gets a half-pound of linseed meal and a half pint of crushed pease a day, with the roots and clover-hay chaff, she will get along all right.

The lambs should be fit for market by the middle of April, and, if of decent parentage, should then weigh, the 4 quarters, from 32 to 36 pounds. A fortnight, or so, after the lambs die, the ewes should be fit to visit the butcher. We have had ewes, treated as above, weigh, dead, 12 stone, 96 lbs., within 3 weeks after the lambs were killed.

In the "French country" where the old breed of partially black sheep is kept, it would pay farmers well if three or four of them were to combine and buy a lamb-ram from a short-wool flock—Shropshire or Oxford, as Hampshires are not easily come by, though Mr. Cochrane's flock of that breed is thriving we hear. We strongly advise this, as the early lambs we saw last Easter hanging up in the butchers' shops in Montreal were fat enough, but *so small!* Some of them could not have weighed more than 15 or 16 pounds a piece, and, as we said before, the flesh looked soft and *pappy*.

The College and the Farm.—At last, whether from being pressed upon by the repeated incitements of the Southron, or from a dislike to being taunted as being behind the times, the southwestern counties of Scotland have started an agricultural college, and have already arranged for a course of lectures to be delivered, not lectures of a purely scientific class, as too many given elsewhere are, but both lectures and laboratory are to be of a plain and practical character.

Professor Wright, in his inaugural lecture, very

sensibly said, that it is by no means expected by the authorities to turn out by these means the ideal farmer of the future. The very best of the teachers of agriculture, in Britain and elsewhere, have learned the solid rudiments of what they know and teach on the farm itself. The college type of agricultural professor is inferior to the average farmer in the actual work of the farm. Far more can be learned by the farm-student at home, as regards some lines on the farm than on the college-farm.

Two years on the farm, and then two years at the college, such is now held to be the best system of study for the intending farmer. We have always said, both here and in the old country, that all agricultural education should be begun, by the young man who means to live by farming, by passing two, if not, three years on the farm of a man who understands his business thoroughly, both as regards the working of it as well as the business side of it, such as the management of labour, marketing the crops, etc., and if, after that period, he can afford the time, a couple of years at College will be of no small benefit to him.

As the editor of the exchange from which we borrow an extract on the above subject says: "Any other way than the line indicated by Prof. Wright could only bring the pretensions of the college to ridicule, but it is not every professor who can see it in that light."

The "New Century" puzzle explained.—No reason exists why any one who rides a bicycle should be confused over the question, 'When does the new century begin?' Every bicycle rider knows what 'a century run' is. It means a run of a hundred miles, and it is not completed until the hundred miles have been run. The second century run of a bicycle rider always begins with mile 101, and his twentieth century run would begin when he started out to make his 1,901, because he would have to complete the nineteen hundred miles to the very last foot before his nineteenth century run would end. So with the centuries of time. Not until the last day of the year 1900 has passed will the century have been completed, and not until the first minute of 1901 opens will the new twentieth century have begun.—*Leslie's Weekly*.

Hampshire-downs.—We have just received our English agricultural papers for January 8th, and

we are glad to see by them that Mr. Cochrane, of Hillhurst, has not been disappointed in the produce of his small flock of Hampshire-down ewes, as he has just received another score of them; these were selected by the well known firm of John Thornton & Son.

Price of cheese in England.—Prime Cheddar is selling at from 76s. to 80s. a cwt. (\$18 24 to \$19.20 for 112 lbs.)—*January 8th, 1900.*

Milch-cows in the London market sold at the beginning of the ninth of January at as high as \$115.00 a head. At Edinburg, some were quoted at \$155.00, but they were probably thoroughbred Ayrshires; at least, we never heard of such a price for "cow-feeders" stock.

Best Scotch Bullocks are worth 6d. a stone of 8 lbs. (dead-weight) more than they were in January 1899, but the choicest Southdowns are not worth more than they were a twelvemonth ago.

Primest clover-hay is selling in Cumberland market, London, for a five-pound-note per 2016 lbs. Shall we learn how to make clover hay next season?

FARM BOOKKEEPING.

This is an important topic and is well worth considering by every farmer at the beginning of the year. By a simple and systematic plan of bookkeeping the farmer can keep in direct touch with every part of his farming operation, and can tell at a glance what his receipts and expenses are for each branch. Mr. H. A. Holdsworth, Precious Corners, Ont., sends us the following outline of his system of farm bookkeeping, which though somewhat elaborate might be adopted by any farmer with advantage to his business:

"First comes a map of the farm like this, only better drawn and larger, (Mr. Holdsworth here gives a diagram of his farm showing the fields, etc., but as neither the size of the farm nor of the fields is given it cannot be reproduced to advantage. The farm is divided into fifteen fields, not including the orchard and those in which the house and barns are situated).

"Then comes my diary in the form; the account of each day's work being tabulated as follows :

January

1899.

3rd.—Cleaned and drew marrowfat peas to Port Hope. Fine and mild.

"The same plan is followed for each day of the month, and for each month, marking only the Sundays throughout the year. I use a book with a large-lined page, each page containing a record of a month's work. In this book I also keep my cash account, which is arranged somewhat as follows :

CASH ACCOUNT.

Received from	Paid to
May 1, John Smith, \$25 00	May 15, John Jones \$10 00
	" 30, James Smith 4 00
	" 30, C. Smith 10 00
	June 1, G. Johns 1 00
\$25 00	\$25 00

"Book No. 2 is used for notes on the different months and accounts as follows :

NOTES ON THE YEAR 1899.

January

Bought from John Smith on the 1st inst. 10 bushels of corn at 40c. per bushel, \$4.00

Mr. and Mrs. John Jones came to tea on the 20th and stayed the evening.

"Anything else of like nature that transpires during the month is recorded and the same plan followed every month of the year. Everything mentioned in the notes in book No. 2 referring to bought and sold for cash goes into the cash account in book No. 1.

"The account with the hired man working for the season is managed this way :

Charles Jones commenced work March 30, 1899, to work nine months for the sum of \$130.

Dr.		Cr.
April 30, To cash \$ 5.00		
May 24, " 1.00		
June 30, " 2.00		
Aug. 25, " 4.00		
Sept. 20, " 2.00		
Dec. 19, " 116.40	Dec. 19, By 9 months' work,	\$130.00
\$130.00		\$130.00

"The account with a man working by the day is arranged somewhat as follows :

Dr.	James Scott	Cr.
1899	1899	
Oct. 25, To cash, \$3.75	Sep. 1, By 1 day threshing.....	
	" 2, " " ".....	
	" 3, " " ".....	
	Oct. 10, " Drawing mangels	
	Oct. 25, By 1 day drawing turnips	
	At 75c. per day.....\$3.75	

"This is about as plain as I can make it, and if any part will be of service you are at liberty to use it. I find this plan answers almost every purpose for ordinary farm life. Besides, any one wishing to know the condition of the weather on any day since April, 1891, can be supplied at any time."

By this system of bookkeeping Mr Holdsworth not only has a correct account of all cash transactions and business carried on during the year, but knows the principal events that have taken place and the condition of the weather on any day of the year. This latter, we think, would be one of the most valuable parts of the system. We should be glad to hear from others on this topic and to have the methods of farm bookkeeping followed for publication.

Farming.

THE TRADE IN FERTILISERS

Two reviews of the trade in fertilisers are summarised. Mr. Thomas Aikman, jun., London, says the trade has been on an increased scale, but prices have had a wider range than for some years past. The quantity of nitrate of soda consumed during last spring again showed an advance on the preceding year's, and the ruling price was slightly higher. In the last six months the large supplies arriving have led to the absorption of about 40,000 tons more than the last year, possibly half of which increase is believed to represent increased consumers' stocks. The supply in sight is very slightly in excess of last year's, with a price about 2d. per cwt. higher than at date last year. The efforts to regulate production have again failed, but natural laws have kept supply and demand fairly adjusted, and it is improbable that prices will fall to the low point touched last year. Sulphate of ammonia has had a range of fluctuation equal to nearly 25 per cent. on its value, and still maintains a price nearly 10 per cent. above last year's close. The increase in production appears to have been checked for the past year, and at no period have stocks accumulated. The value of phosphate has improved a further 15 to 20 per cent., and producers are now reaping some benefit, as freights are again at a more moderate level. Peruvian guano shipments continue on a moderate scale. Potash salts have been slightly advanced by the syndicate of producers. The rates of freight generally are about the level

of last year's.—Messrs. W. Montgomery and Co. report that the development of the nitrate of soda trade has continued steadily throughout the year, but in the spring months, owing to the absence of sufficient supplies, a temporary check was experienced, and, as a consequence of such insufficiency, wide fluctuations in prices resulted. Refined quality has been in increased demand during the year, at prices from 2d. to 3d. per cwt. over those of ordinary quality. The outlook for consumption for the coming season is on the whole satisfactory, but perhaps clouded in some quarters by the lower prices which are current for cereals and beet sugar. The low price of nitrate of soda, however, may counteract any inclination to restrict its use for the crops we have named. The visible supply amounts to 730,000 tons, against 703,000 tons last year. The total consumption of the world for the past three years has been as follows:—1897, 1,100,000; 1898, 1,186,000; 1899, 1,330,000 tons; whilst the shipments for the same periods have been—1,000,000, 1,260,000 and 1,360,000 respectively.

LINING FOR A SILO — CLOVER-SILAGE.

Ed. Hoard's Dairyman:—Some of your readers ask about lining for a silo. A friend and myself each built silos three seasons ago. We lined with 2 ply building felt, with a good coat of asphaltum. We used cheap, rough boards for the sides. This was my second job of silo building, and when I build another, as I hope to next season, I shall build the same way.

My next neighbor, Mr. Fairchild, showed me some clover ensilage. It is the finest feed I ever saw. Each season he fills a silo with the second cutting of clover. (1) It needs no chaff-cutter and so there is not a cent of extra expense. I purpose, hereafter, filling one silo with corn, the other with clover.

Your table of feeds-tuffs is just the thing.

Tonganoxie, Tex.

H. V. H.

WOBURN FIELD EXPERIMENTS.

Dr. VOELCKER continues his account of these field trials, earlier parts of which were given in 1897 and 1898, in the new number of the Royal Agricultural Society's Journal, dealing with the

(1) The best thing to do with it. Ed.

results of 1898. The lessons taught by the wheat and barley experiments are much as they have been for years past; but particular attention is called to the failure of plant of both cereals on the plots which have been dressed for years past; but it appears to have become worse than ever in 1898. The cause is supposed to be a drain of lime, in which the soil of the experimental field is deficient, and this material has been tried on some half-plots with excellent results. The greatest yield of wheat in 1898 (the twenty-second season in succession) was 54.8 bushels, grown on a plot manured annually with $3\frac{1}{2}$ cwt. of superphosphate, 200 lb. of sulphate of potash, 100 lb. of sulphate of soda, 100 lb. of sulphate of magnesia, and, in alternate years, including 1898, 385 lb. of ammonia salts, half sulphate and half muriate. The same treatment gave the greatest yield of barley, 43.9 bushels per acre. In the rotation experiments more barley was grown after feeding roots with cotton cake than where maize meal was fed instead of the cake. Wheat, coming after clover, showed no difference in relation to earlier cake and maize meal manuring, the supposition being that the influence of the clover prevented any difference from being manifested. The case was the same in the clover portion of the rotation experiments. Other experiments showed that "perennial" ryegrass is really more permanent than "annual" or Italian; that both sulphate of potash and nitrate of soda greatly increased the yield of lucerne; and that neither basic slag nor superphosphate did any good to a pasture laid down in 1896; while 2 tons of lime per acre slightly increased the yield of grass.

ALFALFA IN NEBRASKA.

ED. HOARD'S DAIRYMAN:—Red Willow county is a great place for alfalfa. It is first to start in the spring, and is green to the middle of November. It yields four to six tons per acre a year. If cut as soon as ready, it makes four crops a year, and pasture six weeks in the fall. Cows on it give as much milk in October as in June, on clover. I had three big loads per acre at one cutting; thirty-five acres made 113 big loads at one cutting.

The hay is \$5 a ton; this year's crop is worth \$20 to \$30 per acre. The worst drought was in '94, and it made four to five tons per acre, without irrigation; eight acres kept twenty-two head of

cattle all season ; twenty acres were cut twice and kept fifty-seven to November 15. Five acres kept 158 hogs and shotes ; in July fifty fat ones went to market. A 200-acre field was cut twice, and made 1,713 bushels of seed, worth \$5, per bushel. Twenty acres were cut twice ; made 234 bushels of seed. Six to eight bushels per acre is a good yield, still it has made ten to twelve bushels. It stands twenty years without reseeding. It is rightly named the "Mortgage Lifter," for if it can't do it, nothing can. Bottom is alfalfa land. This county has over 60,000 acres of bottom land.

NOTE.—Alfalfa is *lucerne*. ED.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

BARGAINS.

The bargain seekers just now are having a rare harvest. Tempting articles are marked at what seem to be fabulously low prices, in fact so low, that people are led to think now is the only one chance in a lifetime of becoming the possessor of one of these treasures.

Sometimes, it happens that a few good articles are sold at a price to tempt the unwary into the belief that such a chance might never come again ; but, depend upon it, nothing is sold at a loss to the owner ; long before it is placed on the bargain-table such large profits have been made on these sales that the owner can well afford to sell the remainder at cost, or even under cost.

Take, for instance, an article that has been sold hitherto at \$2.50 and is now put on the bargain table and offered for sale at \$1.50. This sounds so tempting that bargain seekers feel certain they have got one, and no mistake, this time.

It was only the other day a young lady was warned as to the advisability of taking one of these bargains, as they were going fast. This same young lady declined, with thanks, at the same time, saying : "I am expecting the same article every day by post from England, where it is sold at 2s. 6d. sterling!"

One need no longer wonder at the apparent generosity of the vendor out here, as his profits are enormous.

It will thus be seen that it takes a very smart man of business to pick out at these cheap sales real bargains ; for anything bought without regard

to its future usefulness becomes an eyesore to the buyer as it serves as a constant reminder of bargain delusion.

I have seen, lately, some supposed very wonderful cheap-sales-bargains, bought four or five years ago, still lying on a shelf, waiting to be of use in some way or other, till they have become a joke in the family as to their ultimate destination.

So, all things considered, it is better to pass the bargain-table and buy of the very best that is wanted, as in the end it is always the cheapest.

WAIST.

Who is there that does not remember the dear old Garibaldi of the past, which made people look very like a sack with a cord tied round the middle, though, in its day, we were only too proud to possess one.

Then came the blouse, which name still clings to a certain style of waist. Now we have all sorts of waists from the rather loose to the perfectly tight fitting one.

The latter does not suit some people, and they still cling to a little fulness, especially in the sleeves, which is more becoming to them.

Indeed the tight-fitting ones require a lot of trimming to make them look nice. One can easily use up in narrow lace "sewn on the narrow tucks of a muslin waist" quite enough to double the price of the whole ; it is very pretty before it gets crushed, but never looks quite as nice after washing.

There are a number of waists from which to choose to suit everyone, and which, when made up with great care and in suitable colours for the wearer, will always look nice. When one sees some pale young or old people got up in colours which only tend to intensify their pallor, it makes one feel sorry that they have not better taste. We have the loveliest, most beautiful warm colours to choose from, this winter ; colours which make one feel warm and comfortable even to look at.

Beautiful shades of brown, mauve, red, and so many others in all shades to suit everyone, quite enough to make one wonder where some people go to get their very ugly colours. A band of velvet cut on the cross and worn round the neck has a wonderful effect with some kinds of shirt-waists ; this with a bit of lace will make a common waist look quite dressy.

COOKERY ITEMS.

To be perfectly digestible rice ought to be cooked in no more water than is necessary to swell it; apples stewed with no more water than is necessary to steam them. Vegetables to be quite wholesome should be very well cooked, as this renders them easier to digest.

A USEFUL KITCHEN UTENSIL.

A useful utensil not found in every kitchen is the rice or macaroni boiler. It is a double boiler, whose inside vessel is punctured by small holes like a colander. It is also provided with small feet, which raise it slightly above the bottom of the outside vessel, which holds the water. As the rice boils, the water goes over and through it; when it is cooked sufficiently, the draining is easily accomplished by lifting the inner vessel out of the water.

TO KEEP CELERY FRESH.

It may interest some of my readers to know that celery may be kept for a week or longer by first rolling it up in brown paper, then in a towel, and keeping it in a dark, cool place. Before preparing for the table place it in a pan of cold water and let it remain for an hour. This will make it crisp and cool.

SCULLERY WORK.

In these days of untrained, one might almost say untrainable servants, there is the constant cry from the mistresses concerning the reckless destruction of all kitchen utensils entrusted to their care. When one looks at the usual kitchen requisites, enamelled saucepans chipped and discoloured, the iron ones burnt and rusted, knives and skewers rusted and spoilt, and worse than all, the filthy, grease-saturated tins and dripping pans, one cannot wonder that all the cookery classes and schools insist upon all their pupils, even ladies, taking a course of instruction in practical scullery work. I see no cure for these troubles unless the mistress herself possesses the knowledge of how these things ought to be prevented, and can teach her servants how to do their work in a proper manner, and to insist upon that cleanliness which is next to godliness, even in scullery matters.

BROOMS FOR CARPETS.

Carpets are often ruined by clumsy or imperfect sweeping. Brooms made of American fibre should not be used for carpets, even though ignorant or careless shopkeepers call them "carpet" brooms. The roughness of the fibre takes all the "nap" off the carpet. Such brushes are only fit for cocoa-nut matting, etc. Brushes made of bristles are the best for carpets. Those made double—i.e., having a set of short hard bristles and a set of long soft bristles, placed back to back on the same handle, are the most convenient and useful. The hard bristles collect the dust, and the longer bristles sweep them into the dust-pan. Hand brushes are better than long ones, and remember that carpets are soon made shabby and threadbare if swept with unsuitable brushes.

A CHEESE SOUFFLÉ. (1)

To make a cheese soufflé prepare first a white sauce by cooking together a table-spoonful of butter and one of flour, and when they are thoroughly blended adding a generous half cup of milk. Stir until smooth and thick, when you may add four table-spoonfuls of grated cheese; salt and pepper to taste. Take from the fire, and beat into the mixture the well-whipped yolks of two eggs, and, lastly and gently, the stiffened whites of three. Turn at once into a well-buttered pudding-dish, and bake to a golden-brown into a hot oven. The soufflé will puff up to twice its original size, and must be eaten as soon as it is removed from the oven. (Yes, *at once*. Ed.)

SPICED APPLES.

Spiced apples are both appetising and timely now that the housekeeping store of fruit is running low. Make a syrup of equal parts of sugar and water, adding a few whole cloves and a few pieces of stick cinamon. When boiling, put in firm, tart apples, peeled and quartered, and cook gently until tender, but not broken. Remove with a skimmer, boil the syrup until it thickens and pour over the apples.

(1) Properly, a *fondue*. "And for second course," said the College cook to Mr. Verdant Green, "ducklings, an apricot-tart, and a *fondew*." How do you make a *fondue*? inquired he. "Why, Sir, I takes some eggs, some cheese, and some milk, I puts them into a *fondew*-pan and I *fondews* 'em." From *P'r. fondue*, to melt. Ed.

GINGERBREAD PUDDING.

This is an excellent family pudding, especially in the winter time, when fruit of all kinds is scarce and dear. For it you will need 6oz. of fine bread crumbs, 2oz. of flour, $\frac{1}{2}$ lb. treacle, a little sugar, 1 teaspoonful of ground ginger, and 2 eggs. Put the dry ingredients into a bowl, add the treacle, then the well-beaten eggs. Pour into a buttered mould and steam two hours.

GINGERBREAD FINGERS.

What child does not like gingerbread? I often wonder that mothers do not make more gingerbread for the youngsters than they do. It is wholesome and digestible, and far better than chocolates and various other sweets which children are always consuming. Here is a recipe for gingerbread fingers which I am sure will be appreciated. Rub two ounces of butter and two of lard into three-quarters of a pound of dried flour, add half an ounce of sliced candied peel, a teaspoonful of ground ginger, the same of baking powder, and a quarter of a pound of the brown cooking sugar. Mix well, and pour in six ounces of golden syrup warmed to a liquid state. Mix briskly, and roll out in a sheet about an inch thick; form into strips, and bake on a greased tin for half an hour in a moderate oven. Store in an air-tight tin.

PRUNE TRIFLE.

Stew half a pound of prunes until quite soft, mash them, and take away the stones, add to these half a pound of sponge-cake crumbs, soaked in a little prune juice. When well mixed, stir in a cup of cream, whipped till stiff, and powdered sugar to taste. Place this mixture in a fancy dish and set it on one side for an hour. Pour over a pint of cold custard, scatter chopped almonds over, and serve. This is an excellent and simple sweet.

The Grazier and Breeder.

PEDIGREE IN FARM STOCK.

It can hardly now be gainsaid that what for want of a better word, is called pedigree in animals has, within the last quarter of a century, seen a great increase in the popular recognition of

its value. With most varieties of farm stock every specimen which is capable of breeding rises or falls in price according as it has or has not a pedigree. A test of the correctness of this assertion may be found by comparing the average rate paid for those lots having an authenticated list of ancestors, which are sold annually by auction with that of others of similar type which are sold in the open market without any such record.

It is certain that what breeders, as a rule, exact, is no more than that pedigree in their cattle and sheep shall put money in their owner's pockets; and results have proved this confidence to be rarely without foundation. Yet pedigree deserves to be regarded from a higher point of view than this, for in it is involved a principle, and that one of very real importance.

A good deal of the erroneous notions about pedigree in animals arises from the fact that the term had an antecedent meaning before this secondary application of it came into use. The notion of the importance of pedigree began with men, and with them the term involved two distinct considerations, of which only one can be said to apply to farm stock. With men, pedigree not only meant the supposition that the members of a distinguished family had hereditary tendencies which were worth having on one's side, but that members of a powerful tribe or clan were all prepared, if necessary, whatever the rights of the case might be, to "go bail," or fight for one another.

A person of pedigree had a two fold advantage over those who had none. He or she had probably useful inmate proclivities, but, if not, there was a certainty of finding backers from his relationships. (1) Now, it is evident that no advantage of the latter kind can accrue to horses, cattle, and sheep. The value of pedigree to them must wholly depend upon the influences conveyed in their blood. With an unpedigreed animal we have only guesses and hearsay as to its origin; whereas, with the pedigreed one, we have written testimony, guaranteed by the respect which most men have for what they put their signature to. With an unpedigreed animal, so great is the influence of two or three judicious crosses in modifying external character, we have no assurance of what that back breeding has been, which sooner or later, is certain to show itself. Where-

(1) Very doubtful now, indeed. Ed.

as with a pedigreed one, we know that for so many generations no alliance has been allowed with any other type than its own. It follows that the chances of aberration, or atavism, in the pedigreed is less than in the unpedigreed.

I hold it that a register of animal life is as serviceable as one of human life; but there is one distinction. The records of animal life—and especially of their alliances are only necessary for that very limited section of breeders who aim at keeping up and advancing the highest known type of their breed; and who aim at being repaid for their extra trouble and expense by getting extra prices for their yearly draft for breeding purposes. The principle of the advantages which arise from division of labour, holds good in stock-breeding as in every other pursuit. There will be those who breed to preserve and improve the type established in the past and to supply other less ambitious breeders, and there will be those less ambitious breeders, who only breed to supply non-reproductive animals for the immediate use of the consumer. The first class *must* have a register to keep abreast with the times. The latter does not want one, and need not incur the expense and trouble which all registration must of necessity involve.

So it comes to this, a few (the inner circle) breeders of every type *must* have a register if they are to keep their variety in the front line with other rival varieties, and themselves in the front rank of breeders of the type. Here comes in an idea about which there is the gravest misapprehension. "Make the inner circle as wide as possible," says one; "that is the way to widen the foundation and extend the breed." This is a mistake altogether; the very essence of register breeding is not comprehension, but exclusiveness. In order to know thoroughly the registered tribes, there must not be too many of them. In order to keep up the type, a not too wide, but a distinctly restricted number, must be kept within the pale. This is not to say that there should never be any addition to the original number; but if registered breeding is to mean concentrated power of impressing itself and reproducing a type, then every fresh introduction must be scrutinised again and again before admission; not only as to what it looks like, but as to what it "throws," viz.: whether it has tribal characteristics of value which are hereditary.

W. R. GILBERT.

SCARCITY OF PRIME FAT CATTLE IN ENGLAND

England has for several months past experienced a scarcity of really first class home-fed fat cattle, and the demand for superior animals has been in excess of the supply. While this has been the case it is claimed on the other hand that butchers were not willing to pay the higher prices demanded for the prime animals. Several reasons are assigned for this scarcity, among them being the very unfavorable grazing and feeding season of 1899, due to the drought and a partial failure of the turnips crops. The *Live Stock Journal*, in summing up the situation, mentions two chief causes of the deficiency as follows, and which may be found to apply somewhat to the shortage of prime beef cattle in Canada:

Of the more permanent causes for a deficiency in the number of high-class commercial cattle, three could be indicated, but we shall only allude at any length to two of these, the other—the want of capital—being entitled to a fuller discussion than can be given here. The two causes may be briefly described as milk and crossing. We have repeatedly expressed the opinion that far too little attention has been devoted to the enormous influence that has been exerted on the agriculture of the country by the development of the new-milk trade, especially in the large centres of population. At one time much of the demand was supplied by numerous dairies of cows kept within the city boundaries, but the improvements in the sanitary conditions of the towns the extension of municipal powers, and the railway system have all combined to change the trade, so that now only comparatively few of the cows that supply the milk used in the cities are kept there, the bulk of it being sent from long distances all over the country. Farmer's have not been slow to see that, unsatisfactory though the prices often are, they have here a monopoly that cannot be touched by foreign competition and so the new milk trade has grown extensively. Cows have been selected wholly with a view to their capacity as milk producers, and where a breeding herd is kept, a bull of the same type has been selected. The heifers are, of course, kept to maintain the herd, and the male calves, if not made into veal, are sold as stores for feeding. When this revolution in farming was in its initial stages, a Shorthorn bull was usually purchased, but then little attention had been paid to

the milking qualities of the breed, and when it was found that herds were running too much to beef, the pure-bred sire was discarded and recourse was had to cross-breeds. In the meantime, the milking capacity of Shorthorns has been far more attended to, but the farmers are shy to try them again. It is on this account that we have always in the interests of the improvement of the store-stock of the country so strongly supported the efforts that have been made to get the milking Shorthorn exhibited at shows. Milk-selling farmers would then be compelled to admit that breeders had not been neglecting the dairy properties, and there would be certain to result a large and lucrative trade for sires which would at once benefit the breed and lead to the amelioration of the store stock bred in these milk-selling herds. If dairy-farmers would only use good pedigree bulls we should not long have to listen to the complaints of the butchers to the effect that prime English bullocks are a scarce commodity.

As regards crossing, our observations must be brief. There has been a very great increase of cross breeding recently, and that the system can be made to give excellent results is abundantly evident, but it is not a method that demands little skill. On the contrary it is quite as difficult to manage as pure-breeding; and by this phrase we do not mean pedigree-breeding, which is a different matter. In large tracts of the country—Yorkshire, Lincolnshire, Cumberland, Westmoreland, Gloucestershire, etc.—Shorthorn bulls had been used for so many years that the ordinary non pedigree herds had become of Shorthorn type, and it was easy to maintain this character by simply using a pure-bred bull of the prevailing breed. In Herefordshire the Hereford did, and does, rule; Devonshire and Somersetshire, the Devon; in Sussex and Kent, the Sussex, and so on. Now, however, there is a greater amount of cross-breeding in many of these localities, as there is in Ireland. The first cross, between a sire and dam of pure breeds, is usually a decided improvement, but subsequent crosses show a disturbance of type, and gradually there is great difficulty in breeding animals of uniform character, and the breed generally becomes mongrelized. We are quite aware that in certain favored spots—as in the north-east of Scotland—cross breeding has become a science, and that by shifting between sires of the Shorthorn and the Aberdeen-Angus the second, third, and fourth crosses (if

the sire is pure-bred) keep up their excellent character as butcher's beasts. The art of successful crossing is not, however, an easy one, and it has taken a long time to perfect the system in the districts named. Elsewhere the crossing has, after the first or second trial, resulted in deterioration, and to this cause no doubt is due some of the unevenness in the stock which has attracted so much attention lately. Greater care in selecting the sires and dams will probably lead to improvement, but in the meantime it is evident that there is a lack of uniformity.

LOOK OUT FOR THE COW.

It goes almost without saying the man who is progressive enough to subscribe for and read *Hoard's Dairyman*, does not need any "chirking up" (as the old Yankees used to call it) on the subject of taking good care of the cows at the beginning of winter.

But we all need "chirking up" at times, and a recent ride through one of the most populous dairy districts in Wisconsin convinced us that even old dairy farmers could throw away money and not know it.

It is altogether too common a practice to allow the cows to range the fields after quite cold weather has set in.

There are two main objections to it:

1. The frost bitten feed they pick up is an absolute disadvantage to them from the butter stand point, for it is hard and woody, much of it, and besides it does not produce fine flavored butter. It is a well understood fact that much finer butter is produced in winter when the cows are feeding on clean grain and good, sweet fodder than in the late fall when their feed is not of that character.

2. Owing to the fact that the feed is short, the cows are compelled to be constantly on the move. They take altogether too much exercise. This fact taken in connection with the poor character of the feed shrinks the milk flow very perceptibly.

This is always a bad thing to allow.

One of the truest signs of a well posted manager of cows is his efforts to keep his cows from shrinking in their milk flow, all he can. This he will do in the drouths of July and August, by providing himself with a summer silo, or some good succulent soiling feed.

In the late fall and early winter, he will open his winter silo early, if he has no summer silage left, and keep the cows full fed all the time. He will commence stabling them at night as soon as cold, uncomfortable nights set in, nights that would prove uncomfortable to him standing still, without a light overcoat on.

Probably a large proportion of his cows are fresh in the fall, and he understands keenly that if he allows them to be checked in their milk flow, he can never hope to get them back again to that point, and so he will lose a certain amount of money on them all winter long.

The keystone to this whole question of the management of cows, is *keeping up the milk flow*, and by other good judgement, cleanliness, etc, keeping up the good flavor of the milk.

The Dairy.

LLOYD ON CHEDDAR-CHEESE MAKING.

(Continued).

The origin of the observations and the methods of investigation adopted.

The scope and conditions of the enquiry.—The record of observations.—The determination of acidity.—Explanation of the record of observations.—The record of analyses.—The methods of analysis adopted.

The Origin of the Observations and Methods of Investigation Adopted.

In 1891 the condition of our knowledge of cheese-making was such as been described in the preceding section. From time to time complaints had been made by those interested in the industry that it was founded entirely upon empirical rules. Joseph Harding had complained that "cheese-making, as a science, is not understood." He pointed out some of the information which he, as a practical man, wanted from science; including "a chemical knowledge of the constitution of the curd and whey throughout the process," and he finishes by saying that if only such knowledge were forthcoming, "cheese could be made (as it ought to be) upon principles scientific, and consequently unerring."

Such was the complaint of practical men in 1860. The late Dr. Augustus Voelcker subsequently wrote some articles on the chemical aspect of cheese-making, which exhibit the great ability that always distinguished his work.

In 1891 the Board of Agriculture decided that it was desirable to have research work made into the manufacture of cheese, and as regards Cheddar Cheese, approached the Bath and West and Southern Counties Society, to know whether that Society would undertake such research if supported by a grant in aid. The society decided to accept this offer, and I was appointed by the council of the society to make observations on the practice of Cheddar Cheese-making, as carried out at the Society's Cheese School, with the view if possible, of throwing some light on the many problems which arise from time to time in a cheese dairy.

Scope and Conditions of the Inquiry.

My instructions were as follows:—

"To pay special attention to any circumstances connected with the practical work of the school which might, from time to time, be brought to my notice by the head teacher.

"To visit the school not less than once a week, and undertake, at my own laboratory, such bacteriological or other researches as might be found necessary in connection with the school.

"To provide a competent assistant to remain constantly at the school, making daily such analyses, doing such work, and keeping such records as might be considered desirable."

As this was the first official attempt to provide a scientific side to a practical cheese school, it was regarded in the light of an experiment, to be carried on for a limited time, to deal with limited time, to deal with limited objects. It had, however, for its main object—

"(a) The formulating of a complete scheme of investigation of the science—of which it is not too much to say that at present very little is known—which underlies the existing practice of the best cheese-makers.

During the whole of the process of cheese-making chemical changes are constantly occurring which are very imperfectly understood; whilst the existence, development, and effect of various bacteria during the different stages of the process doubtless exercise a material influence on the cheese produced, and require to be carefully studied.

Amongst other subjects of inquiry it was desired that particular attention should be given to:

"(b) Variations in quality of milk from cows feeding in different pastures.

“(c) Causes of defects in cheese-making from quality of milk, changes in temperature, &c.

“(d) Effect of temperature in ripening of cheese.”

It was an essential condition that the practical teaching given at the School should not be in any way interfered with.

The Record of Observations.

The first task I had to undertake was to draw up a system of daily observations which should leave no important operation in the manufacture of Cheddar Cheese unrecorded. Such a record would afford data upon every point of cheese-making, from which subsequent deductions might be made. No systematic investigation had ever been carried out in connection with Cheddar Cheese-making, prior to the commencement of

these observations. At a school in France it had been proposed to carry out observations, and a form of record had been prepared, but the observations were never made and the form was not applicable to Cheddar Cheese. A system of recording the daily observations was prepared, and by degrees took the form shown in the following page, while in the Appendix, Table 1 is a reproduction of the Record Book for the month of June, 1892. After an experience of several years with this form of record, it has not been possible to find any facts which are omitted except the number of cows, the date when the cheese is sold (weighed), and the number of days which elapsed between the making and sale of the cheese. For sake of reference, each observation was numbered. In all, 60 observations were made daily, together with analyses of the mixed milk, of the whey, and of the curd.

RECORD OF OBSERVATION.

1	2	3	4	5	6	7	8	9	10	11			
RELATING TO EVENING'S MILK.													
Day of Month.	Name of Fields.	Volume of Milk.	At night.				In Morning.						
			Time.	Temp. of Dairy.	Temp. of Milk.	Acidity.	Time.	Temp. of Dairy.	Temp. of Milk.	Acidity.			
			gallons.	P. M.				min. max.					
12	13	14	15	16	17	18	19	20	21	22	23		
MORNING'S MILK.			Total vol. of Milk.	MILK HEATED.		STALE WHEY.		RELATING TO MIXED MILK, &C.					
Name of Fields.	Vol. of Milk.	Acidity.		Quantity.	Temp.	Vol.	Acidity.	Acidity. before Renneting.	Time of Renneting.	Rennet Added.			
	galls.			galls.		galls.			A.M.	ounces.	Proportion.		
24	25	26	27	28	29	30	31	32	33	34	34a	35	
Day of Month.	Time when Curd cut.	Acidity of Whey before breaking.	Time of breaking.	Acidity of Whey put aside.	Time Scalding commences.	Temp. of Scalding.		Time taken in stirring.	Time in Scald.	RELATING TO WHEY.			
						1st.	2nd.			Temp. when drawn.	Acidity.	Volume.	Acidity of draining from piled Curd.
	A.M.		A.M.		A.M.			m n.	h. m.			galls.	

36		37		38		39		40		41		42		43		44		45		46		47		48		49	
Time Curd remains piled.	Time Curd was taken from Tub.	Time of Curd when taken from Tub.	ACIDITY OF WHEY DURING TREATMENT OF CURD.										Acidity of Curd when Milled.	SALT ADDED		Temp. of Dairy.											
			When taken to Cooler.	After 1st cutting.	After 2nd cutting.	After 1st Turning.	After 2nd Turning.	After 3rd Turning.	After 4th Turning.	Weight.	Per-centage.																
min.	P.M.																				lbs. ozs.						max. min.

50		51		52		53		54		55		56		57		58		59		60	
Day of Month.	RELATING TO CURD.			RELATING TO CHEESES.																	Weight of Cheese when sold.
	Temp. in Vat.	Weight. when Vatted.	Time of Vatting.	Acidity of Liquid from Press.	Weight. taken to Cheese Room.	Loss to Press.	Temp of Cheese Room				Hygrometer Reading.										
							Morning.		Evening.		Morning.		Evening.								
							Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.							
	lbs.	P.M.		lbs.	lbs.																lbs.

RECORD OF ANALYSIS.

Day of Month.	COMPOSITION OF MILK.							COMPOSITION OF WHEY.			COMPOSITION OF CURD.			
	Water.	Solids.	Fat.	Casein.	Albumin.	Sugar.	Ash.	Solids.	Fat.	Ash.	Water.	Solids.	Fat.	Ash.

COMPOSITION OF CHEESES.

Made.	Sampled.	Water.	Fat.	Ca-cin, etc.	Mineral Matter.
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These tables together completely cover the whole process of Cheddar Cheese manufacture. It has been found possible to utilise them, with slight variations, in the study of other varieties of cheese, and in all such cases they have been found to afford a completed record, and to give a minute insight into the operations of manufacture, so that by subsequent study of the facts so recorded it has been possible to obtain a clear insight into the rationale of the system of manufacture. By so doing, it becomes possible to discover the causes of failure on the one hand, or of success on the other. It is greatly to be regretted that no complete record has been made of the process of manufacture of any one of the varieties of English cheese, if we except the work which was done by Mr. Smetham, with regard to Cheshire Cheese. It is not to be supposed for one moment that an ordinary cheese-maker could keep such a minute record as the above, which is only suitable for the purpose of investigation. But a condensed form of the tables, such as will be found on p. 226,

might be kept in every Cheese-Dairy with advantage, and would afford information that could not fail to be of the utmost value, and would well repay the time and labour of keeping it.

(To be Continued.)

AN IDEAL MILK FARM.

While visiting Montreal lately, I had the pleasure of inspecting the handsome and commodious milk farm and premises of Mr. Thos. A. Trenholme who resides at Montreal Junction, and is so well known in the townships. The farm is considered by gentlemen capable of judging, to be not only the best on the Island, but second to none in the Dominion. Mr. Trenholme himself conducted our party through the buildings and explained everything in its fullest detail. On entering the main building we saw a long wide drive way, to the left were situated the meal and provision department, to the right the cow stable.

On passing through a sliding door, a sight met the eye that would please all lovers of dumb animals. 150 milking cows all in the pink of condition and as clean as a new pin, (every cow is brushed and curry-combed (1) daily) and is allowed $3\frac{1}{2}$ feet space. The building is 150×80 feet, ceiling 13 feet, basement 12 feet with a capacity above for 200 tons of hay. There are 3 broad passage ways running the length of the barn, these are all concrete, with cross ones at intervals. Iron tracks are placed all along with wooden turn tables, on these trolley cars for the handling of milk, feed etc., run quickly and smoothly to all parts of the building. In front of the cows fresh water is always running automatically. Broad concrete gutters on a slight decline are placed behind the cows. The sanitary arrangements could not be better, 6 big wooden boxes 12×12 underneath the barn receive all refuse, which are emptied and drawn away on to the farm weekly. Teams can drive and turn under this building at disposal. The ventilation has been carefully thought out, and all windows can be opened easily, so there is an absence of odor that one always finds in cattle stables. We then proceeded to the meal and feed department, this building is 80×30 feet with a capacity for 100 tons of feed. Two large brick silos are here placed, each holding 1000 tons. The ensilage is cut and deposited in the silos by steam power. Above this 150 tons of hay can be stored. Passing along we saw another department 100×45 where 150 tons of grain and straw are kept; underneath this building is a splendid dry concrete cellar, the walls being 3 feet in thickness where tons of roots of all descriptions are kept. These 3 departments are all under one roof, and are in charge of 6 men; it takes them from 4 a. m. until 6 p. m. to attend to the wants of the cattle; there are also several light and airy loose-boxes which are constantly in use for calving purposes. To my mind, if the hired help are not satisfied to work in such a convenient building, they must be hard to please. The cows are milked at 4 a. m. and again at 3 p. m. Silage corn is given them at 6 a. m. and again at 2 p. m., hay at 5 p. m., roots at discretion. After this we visited the engine house and wash room; here the genial engineer and electrician, Mr. Cassan of Kingsey, explained to us all the mysteries pertaining to his department. I should here mention that the whole of these

buildings, horse stables, milk rooms, cellars, etc. Mr. Trenholme's handsome residence and "Thornhill" a quarter of a mile away, the popular resort of tourists (Mr. Trenholme is the owner of this also) who are in need of rest and refreshment, and which is under the able management of M. Curly, of Montreal, are all lighted by electricity from Mr. Trenholme's power house. A deep well has been sunk, 195 feet into solid rock, where the best and purest of water is obtained. This is lifted up by a steam pump, and divided into 3 large tanks each having a capacity of 2000 gallons. This building is quite a distance from the main building so as to insure perfectly fresh and pure water always. After passing through the building we were taken into the horse-table where we saw 15 horses well groomed, and in the best condition. 9 of these work on the milk teams, the remainder on the farm. Every third day 3 horses get a days rest (i. e. those employed on the milk teams). On their return from the city, the waggons enter a covered way and are washed and put in order for the next morning. The milk rooms which are kept under lock and key are worthy of notice. Concrete floors with good drainage, tanks where the milk and cream are kept on ice, and all the appurtenances necessary for a well appointed milk farm, were pointed out to us. At 5 p. m. under the guidance of M. Cassan, I again entered the buildings when the lights were turned on; 18 of these being used in the cow barn alone, to say nothing of horse-stable, milk-rooms, cellars, etc., which were as clear as day. Mr. Trenholme has three golden rules that are faithfully carried out, cleanliness, system and punctuality; he is ably assisted in this big business by his second son Wilfred, who has a great career before him. Mr. Trenholme can well claim the honor of being the father of the milk business in Montreal; 27 years ago he started into it with a very limited income, but with hard work and perseverance he has attained the position he now holds to-day, there is no man on the Island who has been in the milk business longer than Mr. Trenholme. Mr. Trenholme owns about 275 acres of arable land, also one of the finest apple-orchards on the island, and his famous "Fameuses apples" are well known in the Old Country. Here is an example of what a great many young farmers might attain to with a little push and determination, by putting their shoulder to the wheel, and to be on the look out to gain and ask

(1) Don't like the curry-comb. The brush and wisp of straw are all right. En.

information from their elders. Mr. Trenholme is always glad to see any friends from far and near at "Elmhurst", and explain his system of how to run a good milk business. I must here quote an amusing conversation that passed between one of our party and Mr. Trenholme, on being asked who was your architect for these buildings, our genial friend replied with one of his well-known laughs, placing his hand to his forehead, "I am my own architect, after being in the business 27 years, I do not want any one to teach me how to build a barn." To my mind he is right.

FRED T. MAPPIN.

SOMETHING ON THE DANISH DAIRY FARMERS.

Mr. R. E. Lister, of England, the noted manufacturer of Separators, was recently in Winnipeg, Man. While there, he gave an interview to the *Telegram*, and in the course of the same, made the following observations on the life practice of the Danish dairy farmer :

"When I compare this province and Denmark, both with long and severe winters, I am struck with the scant provision for keeping stock in the winter. In Denmark the cow stables are long, cheaply constructed, yet warm building, with straw-thatch roofs. (1) adjoining the farm house at one end. The door from the house does not open on the cows but into an intermediate room used for storing all things required. The cows are in two rows, back to back, with sufficient room for cleaning out, and sufficient room in front of the mangers for feeding from a barrow or trolley car. The ventilation is from the apex of the roof and the temperature kept at about 65 degrees Fahrenheit. The milkers have not to go out in the cold on a winter morning. It is a general practice to put all milk cows in the stable from October 20 to May 20. The Danish dairy farmer is, as a rule, fairly well off, and lives well; the mostly own their own farms. Hand skimming or deep setting is now unknown, the cream separator is universal; their butter is the finest in the world, and commands the best price in England. They also feed a very large number of hogs on their separator milk, barley and corn—the latter they import.

(1) The warmest in winter, and the coolest in summer. Ed.

UNPROFITABLE DISHONESTY.

In 1890 the United States exported dairy products to the value of over \$13,000,000. In 1898 the exports had fallen to a little over \$9,000,000. For this loss of millions yearly we are indebted, mostly, to filled cheese, and what we have so lost the Canadians have gained. The trade that endeavors to compete in a closely contested market by means of poor or adulterated goods, will invariably lose in the long run. The Canadians had the commercial sense to prohibit the manufacture of filled cheese and the foresight to make and ship only a good, pure article. In consequence their foreign sales have grown from \$500,000 to \$17,000,000 per year and the market is still growing.

How long will it take for our cheese exports to recover from that few years of filled cheese? A generation perhaps, or even longer. The European consumer is conservative in his likes and dislikes and once deceived in the quality of a food product, his confidence is not easily regained.

HOARD.

The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

SPRING.

In temperate and cold climates Spring is always looked forward to with eager expectation, and its coming hailed with delight. In our latitude, Spring can hardly be said to be fairly set in until the commencement of Summer, and therefore the sudden transition from cold to heat, from a dormant state to one of activity and growth, makes it imperative that the tiller of the soil should be alert and prompt in action; even more so than in countries where the seasons are longer in changing, and their development more gradual.

February, here, can scarcely be called a spring month; nevertheless, there are some signs of the advancing year, and the coming of a more genial time; the days are longer, the sun higher in the heavens, the buds of many trees and shrubs begin to swell, the catkins on the hazel and willow make their appearance, and inanimate nature shows signs of reawakening. The good farmer or gar-

dener will be warned by these; will make his preparations accordingly, and, like a good general, see that his equipments are all ready for the first call of duty.

The effect of the sun's rays, as it rises higher and higher from the horizon, is more or less rapid in its action upon the economy of vegetables according to their different structures, and thus, in a longer or shorter period, their full development of foliage, flowers, and fruit, is accomplished. This the good cultivateur will watch, and arrange to plant quick-growing crops so that they may be succeeded by a second crop the same season, and thus make the most of his land. As, for instance, a crop of early peas or potatoes may be succeeded by a crop of turnips or cabbage, while carrots, which take longer to grow, must be sown early but will occupy the land during the whole season. Again, early turnips may be sown and cleared off in time for celery. All these plans should be laid in the spring so that there need be no delay.

The cellular substance of which vegetation is composed begins now to be expanded by the increasing heat, and the sap has again liberty to commence its ascent through the many minute tubes of the trunk and branches, and thence to the leaves, blossoms, and fruit. When we consider the delicacy and fine structure of these sap-vessels we shall feel the importance of their being kept in a normal condition, and this can be done by the judicious use of fertilizers and by keeping the trees free from all parasitical growth of lichens or fungi, and from the attacks of insects by careful attention as to scraping the bark lightly, and by washing the branches with approved insecticides and fungicides; all this should be carefully attended to in the early springtime. A band of tarred paper, say six inches wide, tacked round the trunk of a tree about three feet from the ground, and painted every few days with crude coal-oil or thin tar, will prevent the ascent of the female insects which would climb the trees as soon as the fine weather arrives and lay their eggs in the notches of the limbs, where a brood of caterpillars would be hatched ready to feed upon the foliage as soon as it appears.

About the year 1865, the canker worm attacked and ate the foliage of the fruit, maple and elm trees, stripping them entirely, I adopted the above plan, carefully and with perfect success, saving the leaves and fruit on all my trees, while those who did not do so lost theirs.

No better object lesson as to the necessity of the foliage to the life of tree could be given than the scourge I mention presented, for many large trees, having been denuded of their leaves three years in succession, died, and several and valuable orchards in the vicinity of Boston, had to be cut down. In whatever aspect we look at it spring is, not only a time of promise, but of watchfulness and activity and the cultivator success will depend in no small measure upon the faithfulness with which his spring work is performed.

GEO. MOORE.

SEED.

Seed is an old Saxon word spelt with a diphthong (œ) instead of double-e. A seed may be considered the Alpha and Omega, the beginning and the end of all organic matter, the substance which nature prepares for the reproduction and conservation of a species. It will therefore be evident that the seed is the most important part of the plant, and the choice of it of the greatest consequence to the cultivator, because his crop will be regulated, in no small degree, by the quality of the seed sown, and its adaptability to various localities and conditions. All these points should be a matter of study and observation; such varieties of grains or grasses as have been proved to be the most suitable to the soil and climate should be selected, and none but plump, clean, well ripened seed used.

In a commercial point of view, there are few dealers who bear a heavier weight of responsibility to their customers than seedsmen, and to deal with a firm who undersell their competitors is the height of folly; it is always dangerous to buy an article because it is offered at a low price, for in nine cases out of ten it is not cheap; and this is especially as regards seed; for the saving of a few dollars in the purchase of seed, may eventually lead to the loss of hundreds, and involve an expenditure time and labor, to eradicate the foul weeds which were imported into the farm or garden with an impure sample of seed, which would be highly disastrous, if not ruinous.

GEO. MOORE.



GERMINATION.

A germ, in botany, means an ovule, (1) or body contained in the ovary or seed-bud, a hollow case in the centre of the flower; literally, it is the origin, first principle, or that from which anything springs.

Germination is the act of sprouting, the commencement of vegetation or the coming into renewed activity of the life which has been latent in the seed until subjected to the air, heat, and moisture necessary to its revival.

The degree of heat at which seeds germinate varies with the species of the plants which produce them. Those which are borne by plants indigenous to a frigid zone, do so at a very low temperature, while those which inhabit the tropics require more heat and moisture to induce the process.

We may learn by this that, while we shall do well to plant early all seeds which do not require a high temperature to produce germination, as for instance pease, barley, oats, carrots, etc., we should wait until the soil has been warmed by the genial influence of the sun's rays before we plant Indian corn, melon, cucumbers, squash or tomatoes. We should gain no time by planting the latter early, but should have only a sickly seedling, even if the seed did not utterly perish in the earth.

GEO. MOORE.

AGRICULTURAL AND HORTICULTURAL EDUCATION.

Dickens once said, in a speech, at an agricultural dinner: "The field it paid the farmer best to cultivate, was the one within the ring fence of his own skull."

Since then the importance of scientific agricultural knowledge to the welfare of all nations has been recognized and steps taken to make it popular. Great Britain, abounds in agricultural institutes, and the same may be said of the United States. Canada is not behind, and every dollar judiciously expended in this direction is well invested.

In this connexion it may be interesting to notice what European continental countries are doing.

Russia sustains sixty-eight agricultural schools containing 3,157 pupils, for which the government pays about two-thirds the cost.

In France, 3,362 trial-fields are established, where cultivators can profit by experiments made in their own districts, and what are termed the Agronomic Institutes, for teaching agriculture, horticulture, and veterinary science, cost the departments nearly a million of dollars annually.

In Germany, agricultural education includes training in every department of out door industry, culture of forests, fields, fruits, and flowers, a knowledge of poultry, bee, and silk-worm raising. The methods of instruction in Germany in all rural pursuits, are scarcely excelled in any other country; teachers are employed, paid partly by clubs and partly by the state, who are constantly going from place to place, delivering lectures, and giving object lessons and illustrations. These teachers are practical men, and are looked upon as travelling encyclopedias of all knowledge pertaining to the land and its cultivation.

Austria has her graded agricultural and forestry schools.

Switzerland has the honor of having been one of the earliest of the European countries to establish a school of agriculture. Fellenburg, the great Swiss philanthropist, opened a school of agriculture in 1806, as he said, to aid the peasantry, who, possessing nothing but bodies and minds, the cultivation of these was the only antidote for their poverty.

Belgium, small as she is, has superior institutions of agricultural, horticultural, and veterinary science. Holland has long been noted for skill in horticulture and keeps well to the front. £71,500 pounds sterling having been expended for its encouragement by the State, in 1897.

Italy, Spain, and Portugal, are waking up to the importance of spending public money for agricultural training, but the same cannot be said of Greece or Turkey.

In the northern countries of Europe, a complete system of agricultural education is highly developed. In the little kingdoms of Norway, Sweden, and Denmark, there are agricultural, horticultural and dairy schools to the number of one hundred and fifty-nine. In these schools the education is not merely technical, teaching only the art of husbandry, but is also liberal in tendencies, excites a moral influence upon students by giving them an insight into the operations of Nature, and inspiring a sense of responsibility to which the ignorant are strangers; thus, while

(1) *Ovule*, diminutive; from *ovum* an egg. ED.

studying the best methods of developing the natural resources placed at the disposal of mankind, the student is also unfolding the best qualities of his mind and building up his character for after life. GEO. MOORE.

The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

SOMETHING ABOUT EGGS.

There is nothing on the market to-day that is relished more than a good, fresh egg, and nothing is more offensive to the consumer than a tainted egg. If an egg has been incubating for even a day or two, it becomes coarse-grained, like fine cornmeal. Egg-buyers of experience can thus trace eggs in a state of decay from day to day. The carelessness in handling market-eggs is just what is injuring the sale of eggs all over the country. People cannot rely on getting good, fresh eggs, and therefore hesitate in buying.

There is a class of people who are very fond of eggs, and are able to pay for them, and want nothing but strictly fresh eggs, for which they are willing to pay a good figure.

It is for this class of people we must cater, and as long and as sure as you have the right stuff you will get your price.

To cater successfully for this trade, eggs must be properly handled, that is, gathered fresh at least once a day, and that every day, especially during the hot summer months, as at this time hen after hen will go on and off the same nest. The result is that the first egg laid will start to incubate and in a few days a bad egg is the result. Again, after gathering, they should be placed in a cool room, away from flies and where there is no foul smell whatever. Be sure that the room is dry and do not let it to be cool, for, if the eggs are brought out into a warmer atmosphere they will sweat and change to a dirty, dingy color. Eggs in this condition are classed as stale, or second grade, and are sold to bakers to make ice cream.

Then again, eggs must be carefully marketed, which should be done at least once a week, or if possible, twice a week, and make sure not to get any nest eggs in by mistake. To avoid this it is always best to use sham eggs for nest eggs.

There is a kind of gourd, the seeds of which, can be obtained from your seedsman, and you can grow your own nest eggs on the garden fence. When ripe, they make a splendid nest-egg and can be easily recognized from the real in the dark as they are much lighter in weight. Eggs for strictly first class, home trade, should be washed in fresh clean water if soiled, as appearance goes a long way in the fancy egg-trade. If eggs are intended for packing, or for packers' use, never under any circumstances wash them, as it washes the enamel from the shell and opens the pores which permits the air and foul gases to enter, and results shortly in a stale or rotten egg. This is something that people are in the habit of doing continually, and as I have already said, unless the eggs are for immediate consumption, it should not be done.

Farmers often bring eggs and butter to market in the same basket, and the result is that black spots often appear on the eggs where they touched the butter. These seem to be small affairs but are essentials to be looked after.

I would advise also that all the large eggs be brought to market and the small ones be left at home. This would tend greatly to improve the size of eggs in the country, and would result in less loss to the buyers, as they, at present, cull out and sell all small eggs cheap. This has a tendency to keep the price of eggs down. If this suggestion were followed, the buyer would be enabled to pay more for the large eggs, if he had no loss to meet, so the seller would really benefit by selling only large eggs. The English market now gets the large eggs from the United States, and the small ones come to Canada, and the papers seem to think it a good thing to get the best of us in that way! Is it not time for the Canadian farmers to stop that thing, and go to work to improve their laying stock? They can, if they will.

Again, color has a great deal to do with the price. The Chicago market wants a white egg, the Boston market a white egg, while the New York and English markets demand a good brown egg. The English market is what we can cater for, so we must be ready to supply them with their choice. A great complaint of the poor prices had for eggs during the fall; especially is this true in country-towns. There is one prime cause of this: farmers, year after year, pack a large quantity of their eggs, then bring them out when prices are

on the rise and expect to get full prices for what are really no more than salted eggs! The result is that either the farmer or buyer gets salted. This brings in a row over stale eggs, and the farmer complains of poor prices. The farmers make the prices themselves. In fact the whole secret lies in gathering the eggs often, every day, and in marketing them early so as to have fresh eggs. Do this and you will be rewarded for it. To get especially high prices, eggs should be had in winter. It is done by those who study up the matter and breed accordingly for it every year; former articles have told you how.

S. J. ANDRES.

NOTE.—All eggs in England were white, up to about 1845, when the first Cochins were imported. No doubt, the brown egg of all the Eastern hens is more *gamey* in flavour than the white egg of the home-breds. Ed.

D O N T ' S .

Don't engage in the poultry business with the idea that you will make a big living the first year from a few hens.

Don't believe *all* you hear about the fabulous profits made by some loud-mouthed poultry crank.

Don't expect that 90 per cent of all the eggs you set will be fertile.

Don't think that your average hatch will amount to 90 per cent of the fertile eggs.

Don't calculate on raising 90 per cent of the chicks you hatch.

Don't call the man you purchase your egg from a fraud and a swindler (unless you can prove it), if you only get four chicks from the thirteen eggs.

Don't think the seller has sold your eggs from mongrel stock, if one or two birds show some off-color feathers.

Don't think a hen can hatch non fertile egg any better than could be done in an incubator.

Don't condemn an incubator because many of the chicks died in the shell. Investigate yourself as well as the machine.

Don't think while ducks' eggs are hatching the ducks need as much moisture as they want to swim in.

Don't crowd a hundred chicks in the same space as is necessary for fifty, and expect they will thrive.

Don't leave food for the chickens in the feed-troughs until it sours, and then wonder why so many chicks die from the "scours."

Don't neglect to give young chickens and ducks pure fresh water two or three times daily.

Don't take chickens from a temperature of 103° and put them where it is only 75° and think they will grow.

Don't gratify the curiosity of your female friends who want to see "the cute little things" hatch, by continually opening the door of the incubator while the eggs are hatching." (But how resist their request? Ed).

S. J. ANDRES.

Public Addresses.

AGRICULTURAL ASSOCIATIONS.

An address delivered at the meeting of the Dairymen's Association of the Province of Quebec at St-Jérôme.

(By M. G. A. Gigault).

In selecting the working of our "Agricultural Associations" as the subject of my address, I intended to treat on Farmer's Clubs and Agricultural Societies.

I might mention the Dairymen's Association, but solely for the purpose of sounding its praises, and of mentioning the services it has rendered, and is still rendering, to the country by its successful development and improvement of our great

agricultural industry, the leading source of our national prosperity.

My object is to traverse the field of action that lies before the agricultural societies and farmer's clubs, and to ascertain the means by which they may arrive most directly at the diffusion of agricultural knowledge, at the improvement of farming in general, and, above all, at the advancement towards perfection of the industry your society exists but to promote.

These societies are in a position to cause to be put in practice the valuable theories heralded in your meetings.

Every year, more than \$50,000.00 are handed over to these societies by the government; a pretty large amount; and this sum, judiciously spent, ought to contribute greatly to the increase of our farms.

That they are useful, productive of good to all around us, is admitted by every one.

They have already done much to second the efforts of the Dairymen's Association. The establishment of many creameries and cheeseries is due to their initiative. They have, too, greatly promoted the success of this industry by their competitions of green- and root-crops, milch-cows, standing grain-crops, and by all the competitions that incline farmers to maintain and increase the fertility of their land. The increased production of milk is partly due to the improvement brought about by the competitions and the enactments of these different associations. Their efforts to improve our farming have not neglected the increasing of agricultural exports. The grain-dealers declare, that during the last few years, their sales of grass-seeds have tripled and more, which clearly shows that milch-cows are better fed and the yield of milk greater.

But, if many of these societies have worked earnestly and successfully for the development of our agriculture, there are, unfortunately, others whose action has been sluggish, and whose operations have not been sufficiently varied; they prefer following a dull routine, and do not serve their agricultural brethren as earnestly as would be wished.

The law points out the methods that should be pursued by the farm-societies to develop, not an isolate branch, but every branch of farming. Competitions of standing grain-crops, of the best cultivated farms, the purchase of breeding stock.

experiments, agricultural publications, these are the means suggested by the law.

Some societies there are that do not trouble themselves about exhibitions; others devote a trivial share of their funds to the holding of competitions of farms and crops, while others encourage exhibitions and competitions. The Clubs do not hold exhibitions. Which are the societies that render the greatest services to the farmers? In reply to this question, I will lay before you the opinion of several agronomes.

In a report presented, in 1878, in the name of the agricultural societies of Belgium, to the International Agricultural Congress at Paris, we find the following: "Nothing is more decisively settled to-day than the superiority of competitions held on the spot over exhibitions."

Speaking of the competitions of the best cultivated farms, the editor of the pamphlet observes: "The intelligent and well reasoned application of the laws of agricultural production is by no means an easy thing, still, by no other means can we at present realise perfection in that art."

In his Dictionary of Agriculture, A. Richard makes the following reflection: Prizes given to animals are only prizes given to an *effect*, without any consideration of the *cause* that produces that effect. The cattle, indeed, are only the *consequence* of the production, of the increase of fodder-crops. Were prizes given to encourage that increase, it would, to my mind, be more logical than the giving of prizes to animals that are only the results of that increased production.

At page 100 of the same work, we find: "Permanent improvements, as we observed, are the source whence flow the other improvements on a farm. One sees at once that a soil well drained, well-manured, well-worked, must yield heavier crops. But does not this increased production naturally bring in its train the improvement of the cattle that consume it? Consider the case of cattle reared in a fertile district; they are in good condition, well developed, healthy and numerous. In poor districts, on the contrary, where the land, out of order, barren and badly farmed, only yields trifling crops of bad quality, you only meet with sorry crops of bad quality, there you find a scarcity of cattle, and such as there are lean and stunted in growth."

As regards prizes for the best cultivated farms, Mathieu de Dombasle makes the following observation: "It seems to me that if this system were

properly managed, it would be the best way to exciting emulation among farmers, and hastening the introduction of the most important improvements into a district."

In a report, dated May 20th, 1851, presented to parliament by the Agricultural Society of Lower-Canada, we find at page 14, the following remark :

"The Directors of the Agricultural Society of Lower-Canada believe that in addition to the prizes for these important objects, there is one that is already offered by some counties, and which is the most necessary of all, because the influence it would exercise would be of the most useful and advantageous kind to the farming of Lower-Canada; it is the offering of one or more prizes for the best cultivated farms. Doubtless, the prize should be the leading prize of all, for it often happens, in Canada as well as elsewhere, that a farmer who wins one, two, or even three prizes for a few fat beasts, or for a bushel of fine grain, has the worst cultivated farm in his parish; thus these prizes produce by no means the result expected from them by the legislature, while on the contrary, suitable rewards offered for the best cultivated farms, would arouse among our farmers a spirit of emulation, a spirit it is so desirable to see possessed and preserved by them."

It was in 1785, under the auspices of Lord Dorchester, that the first Agricultural Society was established in Canada.

In its first report, its object was stated to be "the judicious cultivation of the land." That should be the aim and object of every Agricultural Association.

The Association of the Farmers of France, composed of the best agronomes of that country, gives prizes every year to the farmers of the best cultivated farms. (1)

Thus, the best judges, while admitting the usefulness of exhibition, declare that competitions of the best cultivated farms, and of standing-crops, are as useful, if not more necessary to the improvement of farming.

(Translated by the Editor).

(To be continued)

Swine.

DOMINION SWINE BREEDERS' ASS'N.

The annual meeting was held during the fat stock show at London on December 13. President George Green presided, and spoke on the importance of adopting the best known methods of feeding, and dealt with the relation between packer and feeder, claiming the former was taking too much out of the latter. Wm. Jones, of Mount Elgin, was elected president, and G. B. Hood, of Guelph, vice-president. A very interesting address was delivered by Prof. Day, his subject being "The Bacon Hog Question." He held that the most important question for the swine breeder to settle satisfactorily was that of the advisability of feeding none but bacon type hogs. The only way to get at an answer was to carefully study the markets for pork and pork products. Investigations had shown that almost the entire home and foreign demand was nearly, and could be wholly, supplied by hogs of the bacon type, if marketed at different seasons and ages. It seemed that hogs of the bacon type were to be the only ones of the future, and it behooved breeders to master the art of feeding and breeding them.

R. Spuires, of Carman, recently killed two spring pigs seven months old that dressed 190 and 250 pounds each. No effort had been made to produce exhibition growth.

An American exchange says: A pig with an upright ear is brighter, more intelligent and more active and restless than the lop eared sort, and that the bacon types are more active and more hardy than the lard sorts. Is this so?

By purchasing a boar when reasonably small the expense is not very great, and you can feed and develop him largely according to your own ideas. A breeding boar should not be forced too rapidly in growth, and ought not to be made too fat. A steady growth and development and a good, thrifty condition is what is most desirable in a breeding boar.—N. W. Farmer.



(1) So does the R. A. S. of England, to the best cultivated farms in the four or five countries in the neighbourhood of the town in which its annual meeting is held. Ed.