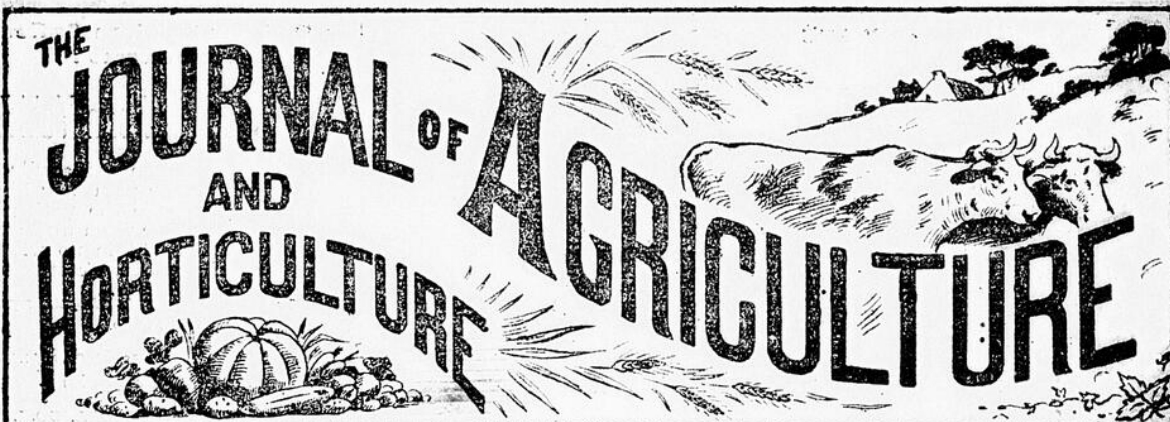


# THE JOURNAL OF AGRICULTURE AND HORTICULTURE



Vol. 7, No. 21      Circulation, 60,000 = (English, 6,000) (French, 54,000)      MAY 1st, 1904.

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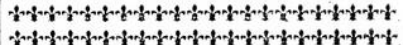
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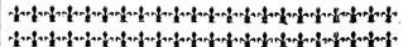
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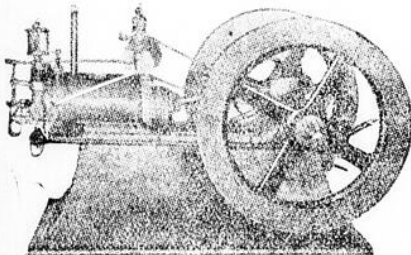
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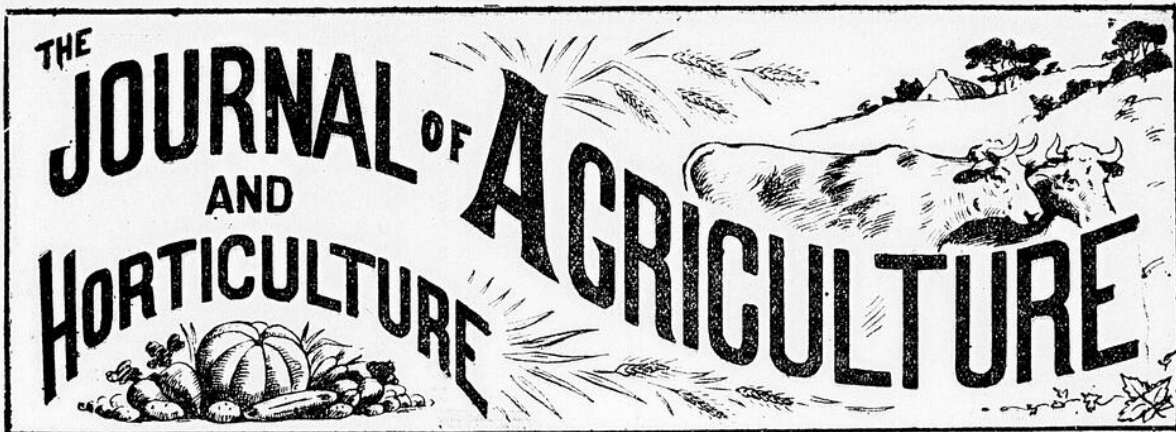
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VOL. 7, No. 21

This Journal replaces the former "Journal of Agriculture," and is delivered free to all members of Farmer's Clubs.

MAY 1st, 1904

### The Journal of Agriculture and Horticulture

"The Journal of Agriculture and Horticulture" is the official organ of the Council of Agriculture of the Province of Quebec. It is issued bi-monthly and is designed to include not only in name, but in fact, anything concerned with agriculture and Stock-Raising, Horticulture, etc. All matters relating to the reading columns of the Journal must be addressed to Arthur R. Jenner Esq., Editor of the "Journal of Agriculture and Horticulture," 4 Lincoln Ave. Montreal. For rates of advertisements, etc. address the Publishers

THE CANADA PUBLISHING CO. Ltd.

73 & 75 St. James St., Montreal.

Subscription : \$1.00 per Annum payable in advance.

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### The Farm.

#### NOTES BY THE WAY.

"Wheat".—If, as Mr. Sewell Read said, in our last No., the average yield of wheat in England is 32 bushels an acre, whereas in Europe, America, etc., it is only 12 bushels, there must be some reason for the vast difference; wherein does the difference lie? Consider, for a moment: is there any difference in the cultivation of the crop? Well, in this part of the world the seed is sown on the furrow, the harrow buries the grain, and, in nine cases out of ten, the growing crop is never touched again until harvest.

No wonder then that the late Mr. Barnard in 1879, set the yield of wheat in the province of Quebec at 8 1-8 bushels to the acre, very little more than one-fourth of the English yield.

Now, let us see how the English farmer treats or, at all events, used to treat his wheat-crop. The furrow is well broken up with the harrows, till the land treads pretty equally all over; the seed—at least a-third to the acre more than is sown here—is put in with the drill at a depth of from two to three inches, and the harrows go to work again until the pulverisation of the surface, and the firming of the sub-surface—not the subsoil—is thorough. Then, the crop is, what the Southerners call, "laid-by", till the spring, for we are talking of autumn-wheat. (Clover-leas are rolled before sowing.)

In early spring, the harrows again are put to work, though a lighter set is used than those used at sowing-time; after the plant has "got-up" again, a heavy roller crushes down the mould, leaving a smooth surface; the whole is either horse-hoed or hand-hoed, and the work is finished off with a Crosskill's clod-crusher or a Cambridge wheel-roller, leaving a corrugated or an indented surface, according to the implement used, so that, if a heavy rain follows, the land does not get "pasty" on the top, to be baked into bricks by the first flush of hot sun afterwards.

We sow but little spring-wheat in England; except in years like the present, when the fall-crop could not be got in on account of the persistent rain; but when it is sown, another bushel of seed is allowed to the acre; the seeding, harrowing and rolling are pretty much the same as in the case of fall-wheat, but as there is not the same time for the plants to tiller, the yield is never so great. It is a sight worth seeing the tillering of the former after the spring rolling, etc., are finished.

"Do you dip your sheep"? If not begin at once, as soon as they are shorn, repeating the operation towards the end of August.

Our friend, Mr. Henry Gray, St. Lawrence Main Street, Montreal, knows our ideas about sheep-dip, and may be trusted. Choose a warm—not scalding hot—day for the operation; use water, at about 150° F. for mixing, and squeeze the wool of the sheep as they leave the tub. We used to have a frame of laths to drain the sheep on, which saved lots of dip-stuff. Why are sheep dipped? For two reasons: first to kill ticks; secondly, to cleanse and promote the healthiness of the skin.

"Sainfoin".—The worst of having passed over the limit of four-score years is, that one's memory begins to fail one. We forgot, when talking about the two sorts of sainfoin, last month, to state that the

giant-sainfoin, though not so long-lived as the common sort, is more likely to give two crops in a season than the latter. But, for permanency, there is no comparison; Lawson, a great authority on seeds, records an instance of the common sainfoin having, what we used to call, "stood-out", for a hundred years.

Our great Kent and Surrey sainfoin growers had a rule regarding the repetition of laying down land to sainfoin: as many years as the land the crop, so many years should elapse before it is laid down to sainfoin again. Do not make the mistake of thinking that anything less than three pecks of dressed seed to the "arpent" is sufficient; if you do, you will find your first and second crops pretty thin.

"Hoard" advises thirty pounds an "acre" for alfalfa (lucerne), but twenty pounds of sound seed is plenty. As for fiddling about with "alfalfa-bacteria", i. e., soil containing them to be scattered over the land intended for that crop, we agree with "Hoard" that "if your land will grow good red-clover, never mind about the special alfalfa-bacteria." Hundreds of thousands of acres of lucerne are grown in England and no one of the "farmers," properly so called, ever dreams of bacteriasing his land for the crop.

#### A WISCONSIN ALFALFA QUERY.

I am going to try a small field with alfalfa, and would like to know if there is any difference in seed, and where could I get some soil from an alfalfa field in order to get the alfalfa bacteria.

Wyocena, Wis.

F. N. P.

There is, of course, a very marked variation in the quality of seed. Some samples may contain a large percentage that will not germinate. It is well to test all seeds before sowing or planting. If, however, this inquiry relates to varieties, we can only say that the common alfalfa must be the general standby for the present and until further experience has settled the relative merits of the different varieties. Alfalfa is now so much in demand,

that practically all dealers in seeds either keep it in stock or can readily procure it.

If your soil will raise good red clover never mind about the special alfalfa bacteria.—HOARD.

"The season".—As the seed-time must be late this year, for goodness sake sow a full dose of all grain to the "acre". Of Oats, 3 1-2 bushels on well prepared land, an extra peck or two or even an extra bushel in rough land ; 3 bushels of two-rowed 2½ of 6-rowed barley ; 3½ of pease; wheat, you had better let alone unless you can get it in before May 10th., at latest, and then sow 2½ to 3 bushels an "acre".

### THE GROWING OF POTATOES.

At a meeting of the East Lothian Farmer's Club at Haddington, Mr. M. G. Wallace, Terreglestown, Dumfries, delivered a lecture on the growing of potatoes. In his opening sentences he dealt with the beneficial effect of a change of seed. In his experience, the benefit of a change from a distance and a different climate had been invariably quite marked, and his special predilection was in favour of seed from a high altitude, a late or wet climate. His main reason for preferring seed from a late climate was that there was less chance of the crop having matured, and immature seed, he considered, was much better than thoroughly ripened tubers. He thought he was well within the mark in saying that three-fourths of the early crops grown in Ayrshire were grown from tubers raised in July, while still soft and green. It was a matter of considerable difficulty to save green seed, disease overtaking soft sorts so swiftly in July that it was often impossible to accomplish the raising before the leaves got badly spotted. It was a good maxim to be sure of the stock from which you were taking your seed. He never troubled himself much about size, beyond fixing the minimum at 1¾ inches for early

and late kidney shapes, and 1½ inches for late rounds, and he never hesitated to plant full-sized ware sets, spacing them well out in the drills. Though expensive at planting, it was a matter for gratification in July, when the increased crop was revealed. He did not say that this was a good plan for those who could catch the first markets, and where earliness was first desideratum, because smaller tubers produced an earlier crop. His two outstanding reasons for advocating boxing appeared to him to be sufficiently cogent to warrant the adoption of the system for late potato crops. The first of these was that the potatoes sprouted in boxes in May were just as early as if they had been planted in the best condition unspouted two months before. There was thus a relief to the pressure of spring labour, and also a comfort to the farmer's mind to know that he need not battle with sticky land. The greatest advantage of all was unquestionably the preservation of the first intention of the seed. He never could get a satisfactory crop of Langworthy or Mainerop until he commenced to box them. Planted in the ordinary way they produced a lot of "brash," with a bare 7 tons per acre crop at best. Sprouting increased the weight by 3 tons, with good size and quality. In every instance where boxing had been experimented with in Ireland, there was a distinct gain of from 2 to 3½ tons per acre in late varieties. The size of the box was a matter of mere detail. The one he preferred was a modification of the Jersey box, stronger made and an inch deeper, the dimensions being 24 inches long, 12 inches wide, and 3 inches deep. The corner pieces were 7 inches in height and strong, so that the boxes could rest on the tops of each other when filled for winter storage. There was a cross handle for carrying and the whole forms a light, handy, and durable utensil, which, with ordinary care, would last for years. The box used in Ayrshire was exactly double the size, and the cost of a hundred of the smaller was 31s., the carrying capacity of these being about one ton of potatoes. Seed was filled until level with the sides of the box, no earth or

water being mixed or applied. Any house where they were safe from frost would do for storing boxed seed. Heat was not required except during severe weather, and even then only sufficient to prevent the temperature from falling below freezing point. But if boxing were to be engaged in to any extent, it was better to make special provision for accommodation. A good deal of light was necessary, for, although the buds came quicker in the darkness, light was imperative to make the sprouts strong enough to plant. The chief objection against the boxing system was that it was a great bother, but he would be glad to know of any farming operation which could be performed without some bother, and the trouble here was more apparent than real. In his experience the relief from the congestion of spring work far more than compensated for any extra winter trouble.

### FARM YARD MANURES

Ed. Hoard's Dairyman :— The substance that goes by the name of farmyard manure, fold manure, dung, or muck, chiefly consists of (a) the material that was used as litter, usually straw; (b) the food that passed through the animals in an undigested state, and has been voided in the solid form; and (c) the urine, which contains the part of the food which the animals digested, but did not retain in their systems.

The urine also contains the waste of the tissues of the animal's body. The proportions of these parts will vary with circumstances. For instance, when it is the object of the farmer to break down as much straw as possible, a relatively large amount of the farmyard manure will consist of litter, but where litter is used very sparingly—as in upland dairies—the manure will consist very largely of the solid and liquid excreta.

All food contains more or less water, even in such substances as grain and cake, one-seventh or one-eighth, while in others, like

turnips, nine-tenths is pure water. Neglecting this water, it may be said that for every 100 lbs. of food that an animal consumes, about 50 lbs. reappears in the dung or urine, the other 50 lbs. being burned up in its system, becoming gas or water, or being stored up in its body as bone, flesh, fat, hair, etc.

A well grown bullock or cow, weighing, say, 900, will consume daily if on full ration, about 24 lbs. of absolutely dry food as for example :

	Dry Matter.
56 lbs. roots (90 per cent water) . . .	5.6
6 lbs. cake 12 " " " " . . .	5.3
16 lbs. hay or straw (16 per cent water) . . . . .	13.4
Total . . . . .	24.3

One half of this, say 12 lbs., will reappear as manure, and to this has to be added the whole of the dry matter in the litter, say 10 lbs., making the daily output of dry matter or farmyard manure 22 lbs. Needless to say, it may be much more, or much less, depending on the age and size of the animals, and on the way in which they are fed and littered. Ordinary farmyard manure is, of course, not dry; on the contrary it contains about 75 per cent of water. The daily output will therefore weigh not 22 lbs., but about 88 lbs. Thus, on a six months' keep, the amount of farmyard manure yielded will be about 7 tons. This calculation applies to full grown cattle; if the stock consists, as it generally does, of a fair proportion of younger animals, the output per head may be only between 3 and 4 tons. It follows, that on a farm with a mixed stock of 50 head, comprising 3 or 4 horses, enough dung should be produced during winter to give a dressing of 10 to 12 tons per acre to about 20 acres.

From the manurial point of view, the three substances that are of the greatest importance in the food, are nitrogen, phosphoric acid and potash.

Although only one-half of the solid matter in the food reappears in the manure, at least three quarters of the nitrogen, and

nine-tenths of the phosphoric acid and potash are voided. These proportions will be considerably reduced in the case of very young animals and increased in the case of fattening cattle.

Of the nitrogen that passes through an animal, a larger proportion finds its way out in the urine than in the soil excreta. The same is true of the potash, whereas the phosphoric acid—viz., the phosphates, are chiefly voided in the dung. It will thus be seen that two of the three valuable elements of the plant food are more abundant in the liquids than in the solids of animal excreta, and, not only so, but pound for pound, the substances in the liquids are much more valuable for crops because they are much more readily available. Experiments have shown that much of the nitrogen in the solid parts of dung can hardly be said to be of any use to plants, whereas the nitrogen of the liquid portion is almost as active, and therefore as valuable, as nitrate of soda or sulphate of ammonia.

In a ton of ordinary farmyard manure there is as much nitrogen, phosphate and potash as in \$3.50 worth of artificial manure, and if a ton of dung is not valued at even half these figures, this is chiefly because a large part of the three substances mentioned never becomes available, or is lost before crops can make use of it. True, a ton of farmyard manure is more expensive to handle than 2 or 3 cwt. of artificials, and this of course, reduces its relative value, but on the other hand, farmyard manure has a beneficial influence on crops, just because it is a heavy bulky substance, so that these two considerations may be held roughly to balance or cancel each other.

This is affected by the kind of food. Food rich in fertilizing materials, especially nitrogen, produces rich dung.

The kind of Animal:—Horses produce dry, hot dung that ferments and acts quickly, but does not last long, whereas the dung of cattle and pigs is cold, slow acting and more durable. The dung of young stock and dairy cows is rather poor in all the important elements of plant food, because in the former case, these elements

have, to a relatively large extent, gone to form bone and muscle, while in the latter case they have found their way into the milk. For instance, while the excreta of a fattening bullock getting decorticated cotton cake will contain about 97 per cent of the nitrogen, 96 per cent of the phosphoric acid and 99 per cent of the potash present in the cake, the corresponding figures for a milk cow are only 87 per cent for the nitrogen, 89 per cent for the phosphoric acid and 86 per cent for the potash. This means that for every 3 lbs. of nitrogen, 4 lbs. of phosphoric acid and 1 lb. of potash that the fattening bullock abstracts, the milk cow appropriates 13, 11 and 14 pounds respectively.

The age of Dung:—Rotten dung is richer and more active, provided it has been properly made, than comparatively fresh undecomposed material. Properly managed dung is more valuable than that which has been mismanaged.

In regard to the treatment of dung, attention should be given to:

The prevention of the escape of liquids, for as mentioned, these hold the larger and much more valuable part of the plant food. These may drain into the ground if the floor of the yard or dung heap be porous, therefore the surface on which the mass rests must be water tight. More frequently, perhaps, they are allowed to run away in a surface stream, and unless this can be led on to a meadow or other field, the loss may be very serious.

The floor of the dung shed should not only be impervious to the passage of liquids, but it should have a distinct slope backwards, so that the front is two or three feet higher than the back. No doubt, concrete is the most satisfactory form of floor, but no great waste, if any, will take place through a foot of well beaten clay overlaid by rubble.

Overheating is productive of loss in various directions. The heat that is always more or less associated with a mass of dung, shows that actual burning is going on, and, in the process, nitrogen escapes into the air. The weight of organic matter is also reduced, and as part of the value of

farmyard manure is due to its being a bulky, organic substance, it is undesirable to have this substance largely consumed in the dung heap. During a winter's storage the loss of weight will usually be about 20 to 30 per cent, but it may be double this, and when the loss is excessive the capacity of the mass to suck up and retain liquids is correspondingly reduced. Moderate decomposition cannot be avoided, and is not to be regretted, for it no loss has occurred by drainage, and but little by the air, the smaller mass will contain practically all the original plant food, and this, too, in a more portable and convenient form. Overheating is avoided by keeping the mass well compressed, and this is secured by the treading of the animals, or by loading on soil or rotten turf.

The mass should also be kept saturated with moisture, and this is best secured by preventing the escape of liquids. With horse dung, especially in a covered dung shed, it may be desirable to add water, but only if there is no chance of any moisture escaping by drainage.

If manure is stored in a compact, deep dung shed, with a properly constructed floor, and if care be taken to prevent its getting more water than falls directly on it in the form of rain or snow, there is no need to cover it in. Loss by excessive washing can be better prevented by other means than by erecting a roof for the dung shed, unless it can be also used as a cattle shed.

Some farmers prevent loss due to escaping liquids by leading these directly on to the land, or by conducting them to a tank which is periodically emptied into a liquid manure cart and distributed over the land. If the character and lay of the fields suit such methods of treatment, they are in every way commendable, but local circumstances often make it difficult or impossible to carry them out. Overheating and excessive loss of weight are obviated by compression and saturation, simply because the dung heap under these conditions contains comparatively little air, and air is a necessity of fermentation and decomposition.

From time to time, attention has been directed to the prevention of loss in manure heaps through adding gypsum, superphosphate of lime, kainit, or sulphuric acid.

On the whole, it cannot be said that any of these has much effect. The admixture of soil with dung, however, is always to be recommended, provided such material can be obtained at little expense for labor.

When dung comes to be spread on the land, it should be distributed as equally as possible. Sometimes, unfortunately, great lack of care is seen in this respect.

Dung should be roughly spread straight from the cart, and finishing touches being subsequently given. One system is, put it out from the cart in small heaps some yards apart, and if these are spread in a reasonable time, well and good, but too often these little heaps are left for days, and sometimes for weeks, unspread, with the result that the rain washes the "goodness" from the dung into the patches on which the heap lies. These are then overmanured, whereas the rest of the field, being supplied with impoverished dung, suffers from insufficient nourishment.

With farmyard manure, even more than with artificials, the farmer should so arrange matters that the quantity of dung at his disposal is distributed over as large an area as is consistent with practical convenience. For instance, 20 tons of dung spread equally over two acres will give a much better return than the same quantity spread on one acre, and yet this rule is often neglected.

In the case of green crops, part of the dung used may, with advantage, be plowed in during fall, but only on clean, strong land in a dry district. Farmyard manure plowed in during the fall, will decay more rapidly than if left in the dung heap, so that a relatively larger proportion will be available for the use of the first crop.

But just on this account succeeding crops will not get so much benefit, and this fact has to be borne in mind in estimating the respective advantages of fall and spring dressings.

W. R. GILBERT.

Montreal, Can.

### HAY AND MILK.

Hay, like grass, constitutes one of the most important milk making foods. Yet somehow a large proportion of milk producing farmers deliberately set to work to produce hay that has lost a large part of its value as a milk food. Wrong habits of thought, of reasoning, and procedure assert themselves constantly, to the making of poor hay. With most farmers the fact of having always made hay so and so, is enough to keep them forever at it in the old way, with little regard to the quality of the hay. Then, besides, the difficulty of curing hay when it is juicy or succulent, and just right to produce the most milk, per 100 pounds, keep thousands of farmers in the old way of cutting hay too ripe, just because it will cure easier. This rut business holds lots of farmers back from the success they ought to have.

Every farmer knows that when the grass is tender and succulent, in June and July, it will produce double the milk that it does when dried and ripe in the fall. Why not then take that knowledge and apply it to the hay? But right here, with many, steps in an idea of false economy, and they will say, "the riper hay will go farther." Well, if that is good reasoning, wheat straw will go farther; that is, the cows will eat less of it than even ripe hay. Why not be governed in this matter of preparing food for the cow by the main consideration:—What condition of the food will make the most milk?

Hoard's Dairyman has for years been trying to get dairy farmers to see some things in their true and best money making light, and this hay question is one of them. It has not been talking theory, but practice, as worked out on the dairy farms of its editors and on hundreds of other good dairy farms.

With the Dairyman, the study has been (1) to find out what is the best milk producing hay plant. It has demonstrated it to be the alfalfa plant; next the red and alsike clovers.

(2) What time or stage of maturity will produce the most milk per 100 pounds of

the hay? To its own satisfaction, at least, it has proved this stage to be, with alfalfa, at the very commencement of the blossoming period; with red clover, when about a third or half blossomed, and with alsike when in full blossom. The hay cut according to this rule, and cured in the cock under muslin hay caps, is worth fully double, as a milk producer, what the same clovers would be, cut later and cured as farmers generally do in the window.

A. Right here comes in another consideration of great value. Cut alfalfa and red clover in the early blossoming stage "before the seed forms," and you will get a strong luxuriant growth in the second crop. Wait till the latter part of the blossoming stage and this follows: With a large portion of the plants they have fulfilled their mission for that year—produced seed; the stalks are woody and no longer succulent as they should be; with red clover and alsike, a large portion of them will die, as these clovers are biennial. By waiting too long, or until the seed has formed before cutting, farmers do more to kill out clover meadows, than they are aware of. Keep the plant back from forming seed and it is astonishing what vigor it will show. These are scientific, biological laws of plant life that we ought to know and take advantage of.

It is astonishing how the outlay of a few dollars for cotton cloth hay caps will make a farmer master of the difficult problem of making fine hay, which the winter following will produce milk abundantly. Hay of all kinds, even timothy, is made very much superior by being raked up quite green, covered with the cap and cured in the cock. If we put good dollars into our hay, we act sensibly. If we pursue a wrong course in the cutting and making, and take that value out, what sort of men are we?

Now, is a good time to purchase the cloth and make these hay caps. We give the formula once more: Take A sheeting, 40 inches wide, and tear off a piece 40 inches long. Do not hem it. Then go to the blacksmith and buy old horse shoes of about 12 to 16 ounces weight. Cut these in

two at the toe cork, and punch a fair sized hole at the cut end. Tie a stout cord (twice the size of binding twine) 10 inches long to each corner with a weavers knot; tie half of a horse shoe to each string and you have the best hay cap we know of, costing about 12 cents. Many times it will pay for itself in one crop of hay. Keep these caps hung across a stout pole under shelter, when not in use. Don't allow them to lie on the ground more than a day. (1)

HOARD.

### THE COMMON SPARROW.

The bold and homely little sparrow is, as most people are aware, to be found in almost every country, not only in the Old World but in the New. It might well be a scarcer bird, for—considering the damage it does—it is permitted greater latitude than perhaps any other British bird, and it is so well known as to need no description, being found in every field and garden and on every house-top.

Sparrows are by no means particular as to the position of their somewhat bulky nests, building in trees, in thatch, under the tiles or slates of houses and farm-buildings, and, in fact, in almost every conceivable position. Further, they will turn out martins and other birds from their nests in order to steal a home, and we have often watched the process. Morris says "that even the chirp of the sparrow must be music to the dweller in a London street." This may be, and doubtless is so, but although one may be pardoned for having some affection for the bright little feathered creature, we ought to be alive to the fact that no other of our birds has such a black life history as *Passer domesticus*. We should accordingly prevent the too rapid increase of the species, keeping it within bounds, as is by no means the case at present. A friend of the writer once said that those who defend the sparrow are

(1) By far the most sensible article we ever read in an American agricultural paper, particularly the paragraph marked A. Ed. J. of Ag.

chiefly divines and ladies! However this may be—and it often savours of truth—it is safe to say that they are either sentimentalists and unpractical, not caring for economic losses, or they are unobservant and careless. It is well to say that sparrows destroy insects which would otherwise increase fifty to a hundredfold. They do, but in small numbers, and there are many birds which would do the work—and more thoroughly—if not driven off by the warlike and thieving proclivities of the sparrow. It is said to be largely owing to them that martins and swallows are on the decrease. Besides this, the birth itself increases at a rate which is, if anything, only to be compared with that of the rabbit, for in half-a-dozen years the progeny of a single pair may—barring accidents—amount to millions; while in the cornfield, where one insect may destroy but one cornstalk, a single sparrow may devour dozens of ears, and destroy many more than it devours. The havoc wrought in a field of wheat is often sad to look upon. The bird is an omnivorous feeder, however, and treats its young "for a time" to soft fruits, young vegetables, and "insects, particularly caterpillars" (the italics are my own). Indeed, the food of small nestlings may consist of 75 per cent. insects, the remaining 25 per cent. being almost wholly soft fruits and young vegetables! Unfortunately, however, many of the insects sparrows "do" eat are harmless species, whilst before even the young leave the nest, their food is changed to grain, and from about then onwards is hard grain—perhaps to the extent of 75 per cent. M. Paul Noël says that 200 sparrows eat sufficient wheat in one day to make a 4 lb. loaf! Such being the case, 1,000 sparrows in one month would consume £3 10s. worth of breach, and destroy much more, showing that the hordes of sparrows, as they sometimes occur in cornfields, would make a very material diminution in the returns of many farms. In August, 1901, I shot and opened seven sparrows at 6 a. m., and found about 80 per cent. of the food contents was wheat, but no distinguishable insects or other seed. Last summer,

1902, during harvest I took fifty-two young sparrows from a climbing rose-tree on our dwelling-house on one day, this number being probably less than one-fifth of the youngsters reared in that same tree during the breeding season. On all hands one finds evidence to prove that the sparrow is a noxious, harmful bird, and, unless care is exercised, may prove at times an utter pestilence. For my own part, and since he is very good eating—making a capital pie—I can only recommend that the birds be shot, or netted at night, and put on the market; and although it is not necessary that five sparrows be sold for two farthings enterprising dealers would doubtless find a ready market for such dainties, while they would have the satisfaction of knowing that they were doing good work in aiding the farmers of this country to keep within bounds what is at present too often an unmitigated evil.

H. C. L.

### SPRING CLEANING OF LAND.

Anyone who has troubled to read agriculture as she is written in books must be aware of the evils of spring cleaning. In the first place, spring ploughing, which seems almost necessary in the case of foul land, buries the fine surface produced by frost and exposes a hard untractable furrow slice only too liable to be caught by the drought and turned to brick. This is not undesirable for a summer fallow, but it is highly so for root crops which require as fine a tilth as can be obtained. It is, therefore, probable that the bare fallow may be forced upon us in many cases in which it was our intention to sow root crops. That an unusual amount of land will have to undergo this ordeal is in every way likely, and, if so, it may prove the means of increasing the area of wheat for 1905, which will be a desirable result as the area in wheat during the present year is likely to be unprecedentedly small. There does not seem to be any serious objection to decreasing the root area in favour of

well-worked fallows lying ready for wheat in September. The cost of root cultivation is so heavy, the risk so considerable, and the return so uncertain, that a leisurely-made bare fallow will commend itself to many as one way out of the difficulty.

Circumstances differ so enormously in farming that it is impossible to write for all, but on strong land which has run wild and is still in much the same foul condition as it was last September, root cultivation must almost necessarily be restricted and carried out tentatively as opportunities occur. There is no need to make cast-iron plans for the future, but it is highly probable that the summer will find a large area of the fallow breadth still unready for turnips.

### CULTIVATORS.

In still further alluding to the copious literature of farming, it is certain that most writers favour the use of the cultivator in preference to the plough for the reason already given. They teach that the cultivator preserves the fine tilth on the surface, and is, on the whole, better able to draw strings of couch out of the land than the plough. Allowing the advantages of the cultivator, whether spring-tooth or otherwise, I am strongly of opinion that no implement has yet been contrived which equals the plough for thoroughness. It must precede the cultivator, and the latter must be regarded as a finishing or at least progressive instrument. Forty years ago there was an effort made to discredit the plough and to boom the cultivator for spring work, and the lesson still remains although it has been qualified by experience. What should be guarded against is over-ploughing or repeated ploughing in late spring. Winter ploughing is only second to autumn ploughing, and early spring is still a good time for ploughing land intended for roots. The cultivator does best in land loosened by the plough. If land is ploughed avoided on both light and heavy lands. It may be cultivated, rolled, dragged, harrowed, &c., and the couch cleared off. Nay, it may be desirable to repeat the ploughing

and take off a second coat of couch, but this ought to be sufficient. A few weeks between ploughing and drilling will allow the moisture to rise from the subsoil and permeate the seed-bed, and, certainly, this season there will be abundance of water in the sub-soil to rise into the soil by capillary attraction. Over-ploughing ought to be avoided on both light and heavy lands. In the one case it produces a rough surface for drilling; and in the other it promotes evaporation, and thus injures the coming root crop.

There is a great contrast in the object in view between a summer fallow and a preparation for roots. In bare-fallowing a harsh, baked, roasted clod is exactly what is wanted to ensure death to every green thing and promote an arid condition of soil which will kill even couch itself. Such a frizzled or roasted condition of soil in July is the best precursor of a tilth suitable for wheat sowing in September, and is always insisted upon in dissertations upon bare-fallowing.

In preparing land for roots the object is to secure conditions favourable to growth at the very time that the clods of the bare fallow ought to be roasting in the mid-summer's sun. Conservation of moisture and mould are the objects, and these seem inconsistent with late spring ploughing or over-cultivation with a view to cleaning land.

One of the most successful root cultivators I ever met with informed me that he ploughed his stubbles after harvest and never touched them again until the day before he drilled his swedes. He then ploughed as much in one day as he could raise and split the next, and drilled by night. This was in East Lothian, and the cultivation was conducted upon the raised ridge system, as is usual there. If roots are drilled upon the flat, the same general principle may be followed, always provided that the land is clean. It is this fearful foulness in land which makes farming unprofitable, and root crops uncertain. Could we but plough and sow, how much easier would farming be; and it could be so done in most cases, if only the land were clean.

Plough, dress, and drill would then be all, and half the horses would become superfluous, and half the labourers would lose their places! I suppose, from the point of view of employing labour, even weeds are a blessing to some, if a curse to others.

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### MIXTURES IN SEEDS.

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As to mixtures, red clover is not to be trusted on most lands when sown oftener than once in eight years. The Norfolk four-course, which provides for clover once in four years, cannot be followed out except by omitting red clover in alternate rotations. Trefoil, alone, is at present cheap at 26s. per cwt., while red is 84s., and white and alsike are 112s. Red clover may well be dispensed with on a great deal of ground with advantage, as its omission now will help to insure a better crop next time the land falls to "seeds." The difference in cost is very great, as 10 lb. of trefoil, 2 lb. of alsike, and one bushel of perennial rye-grass, will only cost 8s. per acre; whereas a mixture with red and white clovers would readily cost 12s. to 14s., which, over sixty or seventy acres, is a consideration.

### CLOVER SICKNESS.

We have, most of us, always considered that red clover is its own worst enemy, and that by omitting it from mixtures, except once in eight years, failure can be avoided. To be told that vetches and beans are fatal to the after success of red clover is a little disconcerting, and I am sure it is not contemplated by a large proportion of practical men. I asked a very extensive farmer his experience as to vetches producing clover sickness, and he replied that he "had never heard of it." We are great vetch growers in this neighbourhood, and the usual practice is to sow red clover on y once in eight years. As I raised the question in this column, I was interested in Mr. Woolley's letter, p. 198, for it tended to support my own fears. If beans and

vetches are inimical to red clover, why not trifolium, trefoil, lucerne, sainfoin, or any other legume? Red clover has certainly disappeared from fields of my own, which have not grown it for from thirteen to twenty years, and yet these fields have been repeatedly sown with vetches and trifolium. In one case the trifolium died out leaving a scant-crop of vetches, and two years later, red clover failed, although none had been sown for thirteen years previously.

ENG. AG. GAZETTE.

### Household Matters.

(CONDUCTED-BY MRS. JENNER-FUST).

Just now, when so many people are in a state of exhaustion, owing to the ravages of Grip, everything that tends to give a helping hand in the daily routine, which has to be gone through in the work of every house, is worthy of a little attention.

Modern housewives are no longer looked upon as shiftless creatures because they make a study of the easier way to get through it at the least cost of strength and labour.

The high cane-seated stool is one of the modern improvements of the kitchen. It is easily pushed under the table when not in use, but its usefulness is felt in so many ways that it does not remain there very long.

In preparing for the daily meals, so much of it can be done sitting, and bodily fatigue saved by collecting all that is wanted to do a given work.

Ironing clothes can be done just as well sitting as standing and even this work can be much reduced by a mangle.

Now, when a want of this kind is badly needed, some good genius is sure to catch hold of the idea, work it out, and make it a certainty.

Only the other day I got hold of an advertisement of the very thing so much wanted, and I need not add that it was in an American paper I saw it.

It was a mangle, with the rollers heated by electricity which will only need the clothes to be folded and passed through them, and a large ironing will be got through in a very short time.

One can now feel certain that as soon as this mangle has been well tested and found capable of doing good work, it will be put on the market for sale and be a boon to all in need of it.

Much waste of time and strength is thrown away on small occasions by giving away by excitable people. Part of the training of young girls should be the study of a quiet manner in speech, and in the action of the body.

This will be found most beneficial in an emergency, and when matters of small consequence happen, as they will in every house, such as the breaking of some cherished article, it will not mend matters to give way, and getting hysterical over it, to frighten and upset the whole household; but make the bravest effort to put up with an unavoidable occurrence that happens to every one keeping a house.

A young husband, who might just have left his home, where a calm quiet dignified mother reigned, must find it most trying to find he has married a bundle of nerves.

### FRENCH HASH.

#### Ingredients—

- 1 lb. cold meat.
- 1 pint weak stock.
- 4 oz. of butter,
- 1 oz. of flour.
- 1 shalot.
- 1 clove of garlic.
- 1 teaspoonful chopped parsley.
- ½ teaspoonful of lemon juice.
- 2 eggs, yolks only.
- Pepper and salt.

Method: Cut the meat into small neat slices, lay it aside on a plate. Chop the shalot and the garlic finely. Put the butter in a saucepan, when melted stir in the flour and the stock, let it boil, add the chopped shalot and garlic, and boil again about eight

minutes; beat the yolks of eggs, stir them to the sauce with the lemon juice and seasoning, stir till the mixture thickens, but it must not boil. Warm the meat in the sauce, serve on a hot dish with the parsley sprinkled over. Those who object to the flavour of garlic can omit it and use another shallot instead. The shallot is a root resembling an onion, but with a more delicate flavour; it is, in fact, an aristocratic onion.

Cost about 6d., exclusive of the meat.

#### MOCK CRAB.

Into a mortar put 3 ozs. of mellow cheese free from rind, add half a teaspoonful of made mustard, the same quantity of anchovy sauce, oil, and vinegar. Pound to a smooth cream, then add half a pint of pickled pink shrimps and serve accompanied with salad.

#### CHEESE CROQUETTES.

Into a mortar put 3 ozs. of dry grated cheese, a dessertspoonful of finely chopped onion, 3 ozs. of fine breadcrumbs, half saltspoonful of salt, a pinch of dry mustard, a dash of cayenne, a piece of butter the size of a walnut, and one well-beaten egg. Pound these to a smooth paste, then form the mixture into round balls about the size of a penny in circumference. Dip the croquettes into beaten egg, then into fine breadcrumbs, and fry in a pan of boiling fat until they are of a golden brown hue. Drain well on kitchen paper. Pile high on a lace paper. Garnish with springs of parsley and slices of tomato and serve as hot as possible.

For orange soufflé, make a syrup of two cupfuls of sugar and one cupful of water. When the syrup spins a thread, add two cupfuls of orange juice and the juice of one lemon. Scald one cupful of cream, add the beaten yolks of two eggs, cook for one minute, take from the fire and cool. Mix with the syrup, and when thoroughly cold add one cupful of cream, whipped stiff. Flavor half a teaspoonful of vanilla, color delicately and freeze. Serve in glasses.

#### RHUBARB FRITTERS.

Wash, dry, and cut into two-inch lengths a few sticks of rhubarb. Dip them into batter, and then fry in boiling fat for five minutes. Drain on paper in front of the fire, and serve piled high on a lace paper with caster sugar sifted over. To make the batter:—Sift two tablespoonfuls of flour into a bowl, add the well-beaten yolk of an egg and one gal. of milk, and lastly, when the other ingredients are thoroughly blended, add the white of the egg whipped to a stiff froth. ...

#### RHUBARB PUDDING.

Cut a small bundle of young rhubarb into small pieces, wash, but do not dry them. Butter a pie-dish, line it with stale sponge-cake or bread crumbs, next add a layer of the wet rhubarb, a few lumps of loaf sugar, and a little finely chopped lemon rind; repeat the layers until the dish is full, cake crumbs to be at the top. Place a few small pieces of butter on the pudding, and bake in a moderate oven for three-quarters of an hour.

Apple Sauce.—When one turns to the cooking of apples first of all we think of wholesome apple sauce and delicious baked apples. Of necessity, apple sauce does not always await the entrance of roast pork. It is good all winter long, for breakfast, luncheon or supper, and it proves a most welcome variation to the housewife who sees her canned fruit supply running low. Apples for any cooking purpose should always be pared with a silver knife; steel will spoil their color. For apple sauce, cook them in a tightly covered granite or white-lined saucepan. Take it from the fire as soon as the fruit is tender, sweeten and serve warm. If you would have the finest possible flavor, put the apples with a very little water and sugar in a clean bean pot, set it in a hot oven and bake. The sauce will have a rich, red color, and a most excellent taste.

## *The Garden and Orchard.*

(CONDUCTED BY MR. GEO. MOORE)

### THE GEOGRAPHICAL DISTRIBUTION OF PLANTS.

Between the Arctic circle and the equator we find every variety of vegetation; commencing with the mosses and lichens of Japlan until we reach the palms and spice trees of the tropics. In the most northern coasts of this continent we find none but diminutive, low growing or creeping plants or shrubs; advancing towards the south, the various species of coniferae appear, closely succeeded by the hard wood-ed, deciduous trees, the maple, the birch, the oak, the elm, the beech; and the apple, the pear, the plum and the cherry among fruits. Another step Southward and we come to the regions of the cypress, some of the genera of gigantic dimensions, the cedar, the cork, the mulberry and for fruits, the peach, apricot, grape, fig, orange, lemon, &c. Of the cereal plants, wheat extends over a larger region than any others, namely, from about the sixtieth degree of latitude nearly to the tropics; barley, oats and rye endure cold better but none of the cereals give satisfactory returns within the tropics except, perhaps, upon some great elevation, but in the tropical regions their place is supplied by maize and rice.

In the extreme tropics we meet with plants and fruits which administer more directly to our supply of luxuries; the sugar cane, the banana, of which many tons are now imported to the temperate climates, the date, the coffee, cocoa, cinnamon, nutmeg, and many others of a like description. Thus between the poles and the equator we have vegetable products entirely dissimilar in quality and usefulness, while all the intermediate regions, in their turn, give us a succession of trees, shrubs, flowers and fruit to suit all our needs. When we think of all the benefits accruing to commerce and civilization from this diversity of the

productions of the different zones, how each one meets the necessities of existence in the others, especially since the rapid method of convergence by railroad and steamboat is an accomplished fact, we can but be lost in admiration of the matchless skill and foreknowledge of the Creator, who has given us this wonderful diversity of the vegetable world, so that all mankind, from the poles to the equator, should be alike benefited thereby.

### HORTICULTURE

#### "Its fundamental principles."

Horticulture, or gardening, is a branch of agriculture of great interest and importance. It may be called intensive farming, because the same general principles of culture apply, whether the work is carried on, on one or one hundred acres.

While, extensive farming is the culture of cereals, for the use of food for man, and grasses and legumes for both him and the lower animals, horticulture means, more particularly, the cultivation of such a variety of fruits, vegetables, shrubs, trees, and flowers, as are especially fit for human nourishment and enjoyment at all the productive seasons of the year, out of doors; and by artificial means, at all seasons.

Herbs, plants, and flowers, which form the delight of the horticulturist, are scattered over many regions of the earth, and their collection and arrangement in appropriate places are full of interest. Thus, the clever gardener adopts and cultivates the succulent foods destined for his use, and finds pleasure in the necessary exertion of his mental and bodily faculties, while his toil is amply rewarded by luxuriant crops, delicious fruits, charming flowers, and stately trees.

Horticulture has the beneficial effect of improving its votaries intellectually and morally, by the very fact that they have discovered a power, by culture, of improving the natural productions subjected to their influence.

The flowers, the fruits, and the esculent vegetables all acquire under their care and treatment new and valuable qualities. The color of one, the perfume or symmetry of another, are improved; and of fruits, the size, the richness of flavor, or prolific habit are increased in value. The plant which in its wild state is nothing but a worthless weed, is by the gardener's skill, converted into a valuable herb, or beautiful flower, and the trees and shrubs of the forest are made ornaments of our lawns and parks. The botanist, the herbalist, the florist, and the pomologist, each finds exercise for his powers, and no wonder that his profession is raised to the dignity of a science, more especially since the advance that has been made of late years, and is still making in all progressive countries. It is obvious that the art of gardening must increase in importance with the progress of commerce, the advancement in education, and the increase of population. A wider field is opened for all branches of horticulture by the increasing opulence of the people, and the fostering of æsthetic tastes in all classes of the community.

If there is an occupation that requires enthusiasm, it is horticulture; no one can be accomplished in any art or profession unless he loves it, but the practice soon inspires the love necessary to proficiency.

The underlying bases of successful horticulture are first, enthusiasm, second, application, third, punctuality in actions, fourth, study and observation, fifth, experiment, sixth, taking all means to increase a correct knowledge of the subject. Competition has its advantages, if carried on in a friendly spirit; the desire to excel is inherent in human nature, and there is a pardonable pride in having produced a superior article. The gardener, who, by his skill and industry, has raised a new and much improved variety of fruit or flower, is as much entitled to honor and commendation as the inventor of some new and useful machine. There are a few fundamental rules of practice that the clever horticulturist will ever keep in view, namely, that the soil is chiefly an anchorage for the plant, containing the chemical ingredients

of which the plant food is composed, but that these are capable of exhaustion and must be replenished by manure, either natural or artificial, or by an interchange of crops; otherwise, fertility will be impaired and will ultimately cease.

That a certain amount of moisture is necessary to bring the fertilizing material into action; that plants derive part of their nourishment also from the atmosphere, by means of the leaves and roots, therefore, the former should be exposed to the light, air, and vapour, and not be allowed to overcrowd each other, but the branches thinned by pruning, and the latter, aerated, by frequent stirring of the soil. That weeds are robbers that must be promptly destroyed in their infancy, that fungous growths are the chief cause of disease and must be arrested by the prompt use of fungicides, that insects are no less dangerous, and must be guarded against by the use of poisons suitable to the peculiarities of their structure, and feeding propensities, that early cropping is necessary in our short seasons; that change of seed is advisable; that none but the most reliable seedsmen should be dealt with, and the seed planted only when the soil is in good condition to receive it. Then, the growing crop duly and very carefully cultivated, and after all has been faithfully done, the result, patiently left in the hands of an overruling Providence.

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### LA PETITE CULTURE

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From time to time, I have tried to impress upon the readers of the Journal, that there are means by which farmers within a reasonable distance of a large city can materially augment their income, apart from the regular proceeds of the farm, and very often a greater profit will be made by these means, but most certainly he has to study both his market and his ability to supply it. It is not for me to tell him what little things, which would take the fancy of the city folk, he is to grow, but only to suggest that he can sup-

ply things, with but little outlay of either time or money, that would give him a splendid return. The following is an illustration of what I mean.

A few miles from the fishing village of St. Ives, Cornwall (Eng.), he who in springtime walks upon the high road from Lelant finds himself of a sudden entering into an atmosphere heavy with the scent of violets. On his right, close to the road side is a sunny cottage whose little garden is at the right season filled with wall-flowers, alvssum, and anemones.

One one side of the cottage is a half acre field, running almost to a point; and, passing opposite to the cottage the traveler sees that this field is blue with violets. It is pleasant to linger in this sweet atmosphere, and a conversation with Paddy, the occupier of the cottage, and the cultivator of the violet field, will make the last miles of one's journey pleasant and refreshing. For Paddy is an original character, with much shrewd talk and a knowledge of gardening well nigh unrivalled; besides he lives on violet. Not so very many years ago he was Sir Leslie Stephen's gardener outside St. Ives, and now he is his own master, making an income of about \$1000 a year out of his patch of violets. He is a widower, and lives alone in his cottage, making his own bed, cooking his own dinner, and keeping his front parlor speckless for his numerous visitors. And it is all done on violets.

The violet planted by Paddy—which he sells at \$5 per 1000 roots—is the Tzar, and this violet blooms steadily from August to April, even with the Atlantic thundering, all the winter but a gunshot from the cottage. The flowers are numerous and the faster they are picked the faster they seem to grow. Paddy is out early every winter morning, picking with his two hands, and as fast as he fills up his boxes he despatches them to private customers in London, and to agents in the large cities. The market price is about 2 cents a bunch, but when the snow comes and English violets wither and die in almost every corner of England, save this, Paddy goes out with joyful heart to scrape away the thin layer of melting

snow from his plot of land, thus to pluck violets that will sell from 8 cents to 12 cents a bunch. Snow in this quarter of the world does little or no harm, for it melts almost as it falls, and its fall is so rare an occurrence that many a bearded man will tell you with a laugh that he has never rolled snow-balls in his life. But Paddy's violets have a bitter enemy in the north wind that blows off the Atlantic at times, with a piercing shrewdness, against which the healthiest plant is weak to contend. However the gardener has been busy of late years planting "shields," in the shape of elder bushes, which makes—so he avers—good hedges stout enough to turn the frontal or flank attacks of these screaming winds. Thus, with a climate in his favor, and with energy strange enough indeed in the West Country, Mr. Paddy gets more gold out of his half acre than many a farmer can delve, from a farm of over a hundred acres.

His chief crop is the violet, but while the violet is blooming, the gillyflower comes too, and for this flower he can always obtain a good sale. When the violets show signs of ceasing, the anemones put forth their exquisite flowers, and all round the half acre of land, close up to the hedges, they bloom in all their varied shades till spring is well over. When the anemone has come and gone, in between the long ranks of violets, appears the famous Mrs. Tompkins, pink—a flower that is rather more trouble than the violet, but one that has a sure marketable value and pays its rent handsomely. But the gillyflower, the anemone and the pink are, as it were, the "petite culture" on a farm whose big business, whose main interest, is the violet. According to Paddy, any man with sufficient knowledge of flowers, and the requisite capacity for taking pains, can earn daily bread, and keep the Savings Bank busy on a patch of garden no bigger than half an acre. And it is remarkable how popular Paddy's violet field is with the inhabitants of Carbis Bay. It is one of the things to do, to stroll out into this field, pick as many violets as one has hand large enough to hold, and then, stepping into

Paddy's parlor—where he is busy packing boxes for the postman—to ask "How much do I owe?" One can get violets in the fashion at a beggarly price, since it is the labor of picking which, in Paddy's phrase, costs the penny.

Of course it is not every quarter of England that will grow the violet as easily as the neighbourhood of Carbis Bay, but many a cottager might considerably add to his earnings by planting this flower in large numbers and sending it to the great city markets. All the world over there is always a demand for old English flowers. Now, I maintain, that what Paddy has done with violets in England can be done by some of our small farmers in some other direction. The case of Paddy living vigorously and well on his half acre field is at least an encouragement for others to try and make marketable use of the odd corners of their farms or gardens. It is expedient however to warn beginners against setting up in a large way: it is the small patch that produces a small income, the big field that produces trouble, disappointment, and ruin. No greater harm has been done to "petite culture", than the encouragement so often and so loudly given to the seductive theory that if ten hens produce \$35 a year, a thousand will produce \$3,500.

It is because the Frenchman is content with his dozen hens, his one pig, and his quarter acre of herbs, that he can make his way, and keep going through the worst of seasons. Here, in Canada, we cannot have too much "petite culture"—helping as it will to keep the young people on the land—but it must be a matter for many hands and not for a few large land-owners.

W. R. GILBERT.

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#### LIST OF BEST VEGETABLES FOR FARMERS.

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Farmers are often puzzled to know what kind of vegetables to select from the long list offered for sale by seedsmen. Following is a list of the varieties which have given the greatest satisfaction in the Horti-

cultural Department at the Central Experimental Farm, Ottawa, which should prove a good guide when ordering seeds.

**ASPARAGUS.**—Conover's Colossal is the best all-round variety, but this variety is more, subject to rust than Palmetto or Argenteuil.

**BEANS.**—Keeney's Rustless Golden Wax or Wardwell's Kidney Wax, for early crop; Early Refugee, for medium; and Refugee or 1,000 to 1, for late crop, are the most satisfactory dwarf varieties. Asparagus, and Lazy Wife and Old Homestead are three of the best pole varieties.

**BEETS.**—Evotian Turnip, Eclipse and Bastian's Blood Turnip are three of the best varieties.

**BORECOLE OR KALE.**—Dwarf Green Curled Scotch is the best.

**BROCCOLI.**—White Cape.

**BRUSSELS SPROUTS.**—Improved Dwarf is the most satisfactory.

**CABBAGE.**—Early Jersey Wakefield (early), Succession (medium), Late Flat Dutch, Drumhead Savoy (late), Red Dutch (red), is a select list of the best varieties of cabbage. For extra early use Paris Market is desirable being a week earlier than Early Jersey Wakefield.

**CAULIFLOWERS.**—Extra Early Dwarf Erfurt and Early Snowball.

**CARROTS.**—Chantenay is one of the best, but if a good extra sort is required, the Early Scarlet Horn can be planted with advantage. It is a small variety.

**CELERY.**—Golden Self-Blanching, (Paris Golden Yellow), Improved White Plume, White Walnut (early); Perfection Heartwell, White Triumph, London Red, (late) are among the best.

**CORN.**—Early Fordhook, Early Cory (early); Crosby's Early, Henderson's Metropolitan (second early); Perry's Hybrid, Stabler's Early, Early Evergreen, and Black Mexican (medium); Stowell's Evergreen, Country Gentleman (late). In planting, the Country Gentleman should not be omitted, as it lengthens the season very considerably, and is of fine quality.

**CUCUMBERS.**—Peerless White Spine or White Spine, Cool and Crisp, and Giant Pera are three of the most satisfactory

slicing varieties. Boston Pickling is a good pickling sort.

EGG PLANT.—New-York Improved and Long Purple succeed best.

LETTUCE.—Black Seeded Simpson, The Morse, and New-York (curled). Improved Salamander, Unrivalled, Tennis Ball, Golden Queen (cabbage), Trianon and Paris Cos. lettuce make a good list.

MELONS, MUSK.—Long Island Beauty, Hackensack and Montreal Market, of the Nutmeg type, and Surprise, Christiana and Emerald Gem of the yellow fleshed types, are all good.

MELONS, WATER.—Cole's Early, Imperial, Ice Cream, Phinney's Early are early water melons of excellent quality.

ONIONS.—Yellow Globe Danvers and Large Red Wathersfield are two of the best onions in cultivation.

PARSNIPS.—Hollow Crown and Dobbie's Selected are both good sorts.

PARSLEY.—Doubled Curled is as good as any.

PEPPERS.—Cayenne, Cardinal, Chili and Golden Dawn are 4 of the best.

PEASE.—Gregory's Surprise, Gradus, American Wonder, Premium Gem (early) McLean's Advancer, Nott's New Perfection, Heroine (medium). None of these are tall growing varieties. Stratagem, Juno (dwarf), Telephone (late), Excelsior is a promising second early sort.

POTATOES.—Extra Early: Early Ohio, Early Andes (pink), Bovee, Burpee's Extra Early (pink & White). Early: Puritan (white) Main crop; Carman No 1 (white), Empire State (white), Late Puritan (white), American Wonder (white), Dreer's Standard (white).

RADISHES.—Early: Scarlet White-tipped Turnip, Rosy Gem, French Breakfast, Red Rocket (red), Icicle (white). Late: White Strasburg, Long White Vienna, Winter: Long Black Spanish, Chinese Rose-coloured.

RHUBARB.—Linnaeus, Victoria.

SALSIFY.—Long White, Sandwich Island.

SPINACH.—Victoria, Thick-leaved.

SQUASH.—Early: White Bush Scallop, Summer Crop Neck. Late: Hubbard.

TOMATOES.—Early: Sparks Earliana, Main Crop: Brinton's Best, Trophy, Matchless (scarlet), Burpee's Climax, Autocrat (purplish pink). There are many varieties of Tomatoes which are almost equal in excellence and productiveness.

TURNIPS.—Early: Extra Early Milon, Red Top Strap Leaf.

SWEDES.—Champion Purple Top, Skirving's Improved.

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## *The Dairy.*

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### PRESERVATIVES IN MILK.

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It is gratifying to me to find that public attention is being actively directed to the absence of legislation carrying out the recommendations of the Departmental Committee appointed to inquire into the use of preservatives and colouring matter in food and drink. It is now nearly three years since the Committee issued their report, in which the recommendation was made. "That the use of any preservative or colouring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drugs Act." When the Committee was appointed, the witnesses on behalf of the Associated Chambers of Agriculture were strictly directed to press for the prohibition of preservatives and colouring matter in milk. The recollection of my own examination as Chairman of the Dairy Products Committee representing the Associated Chambers of Agriculture is brought to my mind, because the illness which made it necessary for me to resign that chairmanship immediately followed. Perhaps I may be allowed to add that the Dairy Products Committee, under the able chairmanship of Sir Edward Stratchey, M.P., have ever since insisted that the trade in new milk ought to be so regulated that neither preservative nor colouring matter could be added to it.

There was an absolutely overwhelming amount of evidence given before the De-

partmental Committee from dairy farmers regularly engaged in the consignment of large supplies of milk from districts remote from London, to the effect that no preservative was necessary in order to keep milks sweet. The two things necessary were then, and are now, cleanliness and reduction of temperature to at least 60 degrees Fahrenheit immediately after the milk has been drawn from the cows. Friends of mine who daily consigned the milk of many hundred cows by rail enabled to give evidence on their behalf of the perfect success of refrigeration. For myself I was able to say that not one single pint of milk out of a year's supply sent from Mid-Staffordshire to London—three miles by road and 120 by rail—had failed to be delivered in perfect condition. In the years which have gone since the Departmental Committee made their report, public attention has been called by medical officers generally to the absolute necessity that milk used for the food of children should be not only fresh, but free from any preservative. On the one side we have a consensus of opinion from large consignors of daily supplies of milk in favour of prohibiting the use of preservatives, and on the other side a like consensus of opinion of medical officers asking that their use should be prohibited in the interest of the public health. The time is not only come, but it has been present with us for long, when it ought to be plainly stated that Sir Herbert Maxwell's Committee has been hardly used by Parliament. Year by year the trade in new increases, and is likely still further to increase in proportion as the confidence of the public is confirmed in the good effect which follows its use as a daily food.

I should not like to ask for the prohibition of preservatives in other articles of food and drink. So long as we confine our demand for prohibition to milk, we have present to our minds the necessity of removing possible mischief from the daily food of our children. It may be that boric acid may safely be added to butter and even to cream. But milk as a food stands in a position widely different from butter

or even cream. Rightly, I think, responsible people have convinced themselves that children's food should be natural food, kept strictly free from the addition of chemicals. In plain language, preserved milk is "not" fresh milk. And children require and ought to have a daily supply of fresh and pure milk, the means of distribution of which will be stimulated by the prohibition of preservatives. It is altogether a mistake to endeavour to keep over from day to day an article which ought to be consumed fresh, and which can be procured each day in a quantity proportionate to the need of the day.

Some statements have been made with respect to the presence of boric acid in Danish butter, and it is said that litmus paper correctly proves such presence. I do not profess to have any special knowledge of chemistry, but I believe that litmus paper may indicate any sourness, whether or not due to a preservative. Also, I believe that the Danish Government strictly prohibits the addition of any preservative except salt to butter made in Denmark, whether for home use or for exportation.

T. C. S.

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#### DAIRYING IN THE EIGHTEENTH CENTURY.

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A rare and interesting book on the practice of dairying in the southern half of England, as it appeared in the penultimate decade of the eighteenth century, has recently come into my possession. It was written by one J. Twanley, "from a Series of Observations, during Thirty Years' Practice in the Cheese Trade". And it may be taken to represent the high-water mark of erudition in the dairy which had been arrived at in the period when the book was written. Printed for the author by J. Sharp, and published at Warwick in 1784. It was sold by Messrs. Rivingtons, St. Paul's Churchyard, and J. Taylor, No 56,

Holborn, London. The title of this volume of 184 pages, well printed throughout from sound, clear type, is as follows :—

DAIRYING EXEMPLIFIED OR THE BUSINESS OF CHEESE-MAKING.

Laid down from approved Rules, collected from the most experienced Dairy-Women, of Several Counties.

The author says, at the outset :—"It has been the wonder of Many People, who are interested in the Article of Cheese, either as Makers or Dealers ; that no Treatise or Book of rules, or method of making Cheese, hath ever been attempted ; or the business of it examined, so as to direct those who are concerned as Dairy-women, or having the chief management in Dairys, to become proficient therein." He goes on to speak, as indeed we might speak to-day, of the "great number of inferior Dairys there is, in comparison to the few that are excellent in their kind," and of the "different, yea, very different qualities of Cheese produced in different Dairys, or even in the same Dairys, when either the Dairy-maid is changed, or the usual method of Cheese-making, by the Mistrees or manager of each Dairy, is not strictly adhered to."

It would appear, therefore, not only that the book before me was the first of its race in this country, but that its teaching may be said to represent the best that was then known on the subject. He tells us that "the general way that the art of Dairying has been carried on for Ages, has been progressive, on traditional, being taught by Mother to Daughter, from common and continual experience." Taking some measure of exception to the word "progressive," we may very well consent to agree with our author in this, and may further admit that his description applies with corresponding fidelity to the sixty or seventy years next following the date of his book, save and except in respect to the making of Cheddar cheese. "The present System of Dairying, being in a very imperfect state, I am in hopes my endeavours to render service and improvement, will not be found unnecessary," he piously says: but even then the cheese of Gloucestershire

—the home of the Cheddar method—had obtained a reputation unequalled by that of any other county, and approached only by that of Cheshire. The "North-Wiltshire Cheese," he says, "always bears the greatest Price of any Dairys, except those of Gloucestershire." This interesting writer of long ago was clearly an expert who was devoted to the subject of dairying, and he utters a dictum, which is true for all time, in the following way:—"A cow may, I think, justly be stiled the most useful of all Animals, in regard to man," and he proceeds to enumerate what she contributes "to our comfort and support through life"! "We often," he says, "hear talk of Cheshire Dairys of 100 Cows each, which the largeness of the Cheese in a great measure accounts for." But the Cheshire herds were exceeded numerically by some in the South, and he tells of one farmer, within twenty miles of Bath, who milked 200 cows, and of "Dairys that make Twenty-five Tons in a Year ; and some few more than that." These last were located in North Wiltshire. "But what are called large Dairys in Warwickshire, Leicestershire, Staffordshire, or Derbyshire, is from 20 to 40 Cows Each." His estimate of the yield of cheese per cow is on an average "three hundred-weight." I have weighed," he says, "many times Four Hundred from a Cow, and some few Dairys which have produced Five Hundred from each Cow." These cases, however, were attributable to "an excellent Grass Country, where Meadows of dry Old Turf have been the pasture," to "clear streams of running Water," and to a cool retreat for the cows in hot weather. And, in reference to unsheltered uplands: "I take it that oftentimes in very Hot Weather, the Milk in a Cow's Udder is very much agitated by driving, or running about," by gadding, and so on, and that it "would not yield near the quantity of curd" that it ought to do. He recommends "the use of a Thermometer, to shew the degree of Heat Milk should be in when you put the Runnet into it"; this is, he says, "what may be properly understood, Milk-warm." He feels, it would seem, somewhat shaky as to the phrase "properly understood," for he

hastens to say in a footnote :—" By the Term milk-warm, is not commonly understood, the Warmth that it has on coming from the Cow, as that varies according to the Heat of the Body of the Cow, at the Time of Milking, but a Warmth, a few Degrees removed from Coolness : a Degree of Warmth in general well understood." All of which is charmingly vague and inconsequent ! Delightfully so on the part of an expert who recommends the use of a thermometer in the dairy !

"As soon as the Milk is reduced to a proper warmth," he says, "and before you put the Runnet to it, it is an exceeding good way to put a handful or two of Salt into the Milk, or three or four handfuls if your quantity is large (I recommend about two handfuls to ten or twelve Cow's Milk;) this will also cause the Runnet to work quick, and giving a Saltiness to the whole will be a means of preventing Sweet or Funky Cheese." All this is amusingly vague and unscientific, as we know now, a hundred and twenty years subsequently. In another place he says :—"Sometimes you will find in Cold Weather, your milk in the time of earning get Chill." In this event he recommends the dairymaid to "take a Tea Kettle of Hot Water," and put it into the milk, "when the Curd is nearly, or pretty well come, as then the Hot Water will give a Toughness to the Curd, to relieve it of the slippery nature it had acquired by being Chill." "The time of earning" is an archaic phrase now converted into "the period of coagulation"; and his words, "pretty well come," are a very simple expression, still in some localities employed to indicate that coagulation is nearly complete. It was then, as now, a general thing to allow the milk to stand an hour, "in earning, after the Runnet is put in, before it is gather'd, or sunk." "But here," he says, "lies the greatest mischief in Cheese making : the milk"—meaning the coagulum—"is very often disturbed before its proper time, and sometimes when the whole is in a state of Slip Curd, or Slippery Curd, before it becomes solid Curd, fit to make Cheese with." This, indeed, is true in our time, as it was when George the Third was King.

And he goes on with a wholesome warning to dairymaids against being in too great haste with the process of cheese-making, in the following manner :—"Butter is produced by violent Motion, and Cheese from a state of rest, being directly opposite." He seems to stand in some awe of "Runnet," whose nature is such as will dissolve the curd, in part coagulated, if more is put in, which "disturbs the whole, and prevents its becoming Curd at all, or, in a very imperfect State, remaining in the Whey, in an undigested State, that will neither turn to Curd or Cream, and a principal part of the richest of the Milk is then cast away with the Whey." And, again :—"You are always to observe that the state in which it is when you first stir or disturb it, in that state the Curd will remain ; it never improves as Curd, or becomes better Curd after it is disturbed or removed from its state of rest." He proceeds to indicate what, in the opinion of the experts of the day, becomes of the "bits of Slip Curd" that "swim about in the Whey," and do "not sink with the rest, till the Whey is laden from it. They would not," he tells us, "adhere to, or join with the solid Curd, and though ever so well broke or separated, yet in whatever state it is, when the Cheese is made, it all dissolves, or melts : if a bit as big as a Nut happens together, it dissolves into a Whey Spring, runs out, and leaves a Hole in the Cheese, which always decays in that place; if a bit as big as a Pins-head happens, it dissolves, and leaves an Eye in its place, and that is the cause of Eyes in Cheese : if you cut the Cheese when young, you will find, that there is a Moisture, or Wet, in every place where the Eye is, after it is dried up, which Wet or Moisture is Called Tears." Bravo !

It must not be supposed for a moment that the book is mostly a collection of quaint fancies of the period, however, though the whole work—seen by twentieth century eyes—is quaint enough in information as well as in phraseology. There are, here and there, to be found sage remarks on the practice of the dairy which are true now as they were in the eighteenth century,

and will be true in centuries to come. For instance :—

"The thing that more Dairy-women err in, than any other, is gathering or sinking the Cheese too soon." This, however, is succeeded by a remarkable explanation, in the following words :—"The rending of Cheese, causeth a very great fermentation." And here we have an instance of scientific prevision, almost if not quite as striking as that of Shakespeare, who says in one of his admirable bursts of inspiration (I quote from memory) :—

"Oh my cheese, my digestion, whis is it thou hast left thyself out from my meals for so long a time?"

In each case was proclaimed an anticipated truth which has been revealed and interpreted in recent times.

Our author gives elaborate instructions as to the selection and preparation of what were then generally called "maw-skins," and which are now usually designated "rennet-skins." Rennet extract, as we have it to-day, was not known as a purchasable article to the dairymaids of the eighteenth century, who were recommended to have a fresh preparation for each day. Our author believes in giving the rennet time enough to coagulate the milk. This was called "earning time," and it "should on no account be less than an hour and a half." And also in a "firm curd," which is easily "gathered," for, as he says, "what is called a sunk Cheese is always allowed to be the fattest."

Further extracts from this rare book will probably be interesting to dairymen nowadays, and if so I will give them later on.

J. P. SHELDON.

#### A HOLSTEIN COW SCORES AGAIN.

The Eastern Ontario Live Stock Show at Ottawa, March 7th to 11th, brought out a creditable lot of dairy cows numbering nearly twenty. Ottawa district has for years been famous for its Ayrshires, and competition in that breed is always kept at Ottawa fairs. In that class J. G. Clark,

Ottawa, and R. Reid & Co., Hintonburg, had over a dozen typical cows which made an excellent showing. Only one Holstein-Friesian cow entered the test, but she was an extra good one and easily outclassed everything else in the number of points scored. This was Lady Colantha De Kol, owned by Neil Sangster, Ormstown, Qué., and bred by G. W. Clemons, St. George, Ont. If given proper handling, she promises to develop into one of the greatest cows ever bred in America. Her sire was Colanthus Abbekerk 2nd, a half-brother of the champion butter cow of Canada, Tidy Abbekerk, and her dam was sired by the famous American bull, De Kol 2nd's Netherland. Mr. Sangster had never competed in any of the previous dairy tests and he has reason to be proud of his first venture, especially when it is taken into consideration that his cow had travelled a long distance by rail and without water for two days, while nearly all the other cows were owned within two or three miles of Ottawa. A 48 hours' test of 151.8 pounds of milk and 516 pounds of fat, equivalent to over 6 pounds of butter, would be regarded with satisfaction by the most expert feeder of dairy cows.

G. W. CLEMONS,

Secretary.

### *The Grazier and Breeder.*

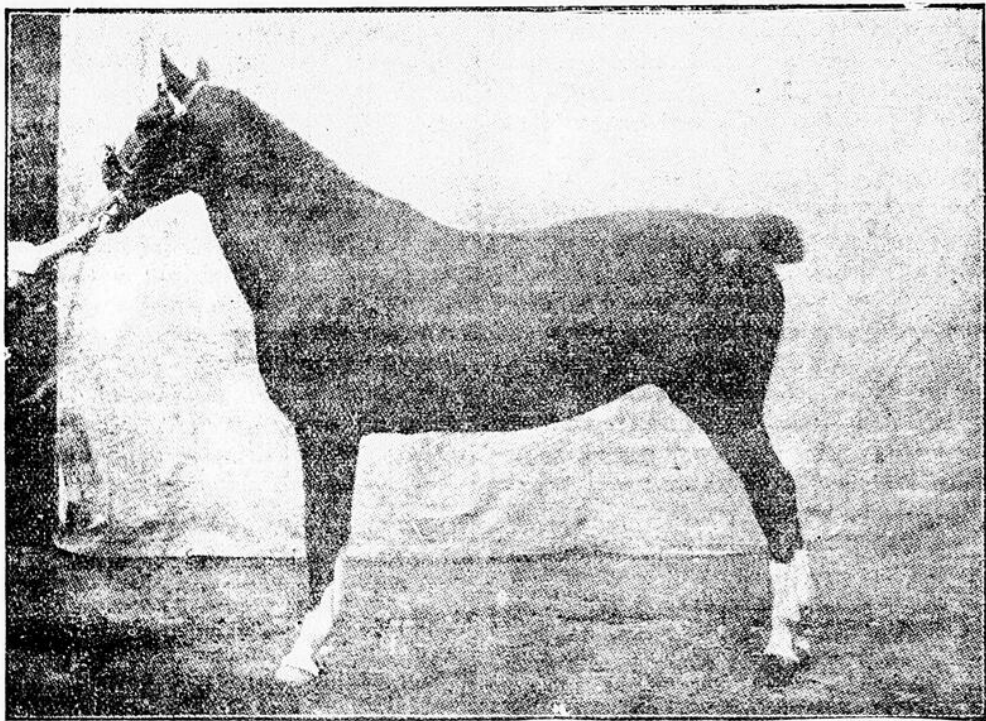
#### BREEDING HORSES FOR SPECIFIC PURPOSES.

Practical talks by practical men. — Two evenings with the horse breeders.

The large and commodious rooms prepared for the series of meetings held by the Canadian Spring Stallion Show were well filled on the evening of March 2, and the educational lectures delivered by the various speakers were highly appreciated by all. Mr. W. S. Spark, V.S., the first speaker, was right at home on his appointed subject, that of the heavy draught

horse. If good draught horses were to be bred, we must go about it intelligently and in the right way. One of the first considerations was to use only sound animals for breeding purposes. Equally fallacious was the use of cheap inferior sires. So many seem to think that if they obtain stud service at \$2 or \$3, while their neighbor paid \$15 to \$20 for his, they were just so many dollars ahead, and even the fact that their neighbor was able to sell in the end for

\$100 to \$150 more, did not seem to impress them, for many still continued to use the cheap ones. One of the most beneficial regulations that could be introduced into the business would be that of the registration of all stallions serviceably sound. This question was to be brought up at Ottawa. Only such horses as were pure, or thoroughbred, of good useful type and sound, were to receive such certificates, a list of which would be sent to every Farmers'



HACKNEY MARE ROSADORA.

Champion Mare at the London Hackney Show. The property of Mr. Charles E. Galbraith, Terregles, Dumfries.

Institute in the country. This would improve the breed or produce a breed for which there was a large demand, do the country much good in every way in which the draught horse figured, and be one of the most beneficial measures ever taken for the eradication of unsoundness and disease.

A good practical suggestion for the everyday farmer in the breeding of horses was when you bred such a mare as you happen to have to a good horse and get a

good filly, keep it, and sell your geldings. She will in the end replace your old mare, and every cross is a step higher. Make certain districts noted for the breeding a certain kind of horse. This was better than all breeding or trying to breed something different from what his neighbor did. It would make the matter of sales easier as buyers would know where to go for that kind of horse every time, instead of having to roam the whole country for any kind of

horse. The statement may sound rather odd to some, but at the present time there is no breed of horse in Canada now except the standard bred, and the speaker was not a lover of the standard bred. There was a good kind of pony in Canada once, but it has been ruined by indiscriminate breeding, crossing with Percheron and Belgian horses. It can never be brought back, but something could be done, a good draught horse could be bred, and the best way to breed it would be to cross the Shire with the Clyde. It would be a grand breed that would combine the good qualities of both. Some would say not to mix them. The Prince of Wales, of whom Clydesdale men were so proud, was the grandson on both sides of Shire granddams. One of the champion Shire mares had two crosses of Clyde blood. Why not bring them together and make the finest horse in the world? The object in breeding a draught horse was to produce an animal that could move the greatest load with the least effort and the greatest ease. The best way to do it was to do as Lawrence Drew had built up the Clyde, by getting the best Shire mares and crossing them with good Clyde stallions. Drew selected the mares with the best legs and feet, and that is why the Clydes have better feet and legs than the Shires today. By means of stereopticon views, Mr. Sparks showed a number of different types of horses, pointing out the defects and good points of each.

#### PROF. GRIDDALE ON FEEDING

The evening of March 4th, the first address was by Prof. Griddale, on the best way to feed. "The important point," he said, "is to feed in such a way as to make the best horse at the smallest cost. Feeding is an art, and like all art, there is some science in it, and one can only learn that side of it from practice. The feeding of draft horses has embodied in it three great objects: Feeding to make as large as possible, to make the size obtained of a character as useful as possible, and to keep the animal in a healthy condition. Beginning with breeding, a stallion is an animal of requirements and character similar to

other horses. Many owners of stallions feed to get them as fat as possible before going out on the road in the spring with them, and the commonest result of this was that the stallion lost a good deal of his power. It is a great mistake to do this. Great care should be taken to keep the animal in the fullest health and vigor. Moderate condition, with lots of exercise is the best way to obtain this. The same is the case with the mare. Many people resort to condition powders and other fads to do this, a more effectual mode is to feed commoner and cheaper foods, that are raised at home, such as contain the elements for the formation of bone and muscle. A critical time with mares is after service. One should always be careful not to overstrain or overwork, as the foal itself is the direct reflection of the mother's history while it was being formed. Good grass is the best food first, and later crushed oats, roots, good, untainted hay, and pure water. As foaling time approaches, food should be reduced and made of a more loosening nature, as bran mash, etc. After foaling, feed to give lots of milk. Best grass, oats, bran. As for the colt, the first thing is to get it started to suck. See that its bowels are open, if not, give castor oil. If it is, from any cause, necessary to give cow's milk, dilute it two parts milk to one of water, and add a little sugar. Always give it to the colt about the same temperature each time it is fed, and from a clean vessel. To disregard this is to invite indigestion. At weaning time give clover hay, cut on the green side, and fresh and fine. The first winter after weaning is a critical time. How a colt passes through it often whether it will ever be a good draft horse or a common farm plug. Feed well, clean clover hay, oats and roots. The second winter he should do with less care than the first." Mr. Griddale also spoke of the fact that leaving a field for pasture for horses too long was not a good plan. There was too much of a tendency for it to become filled with parasites that attack horses. Regularity was the great thing in feeding horses. Hay should be fed from the ground, not, as was once too often done from an overhead rack.

Mr. S. W. FULLER, OF WOODSTOCK

spoke on the different kinds and classes of light horses and how to breed them. The saddler, hunting horse, and the heavier harness horse, met with a good demand in the English market. Such horses stand from 16 to 16.1 hands and weigh twelve hundred to twelve hundred and fifty pounds. Odd colors in this class are not wanted. Such horses may be bred from general purpose or partly blooded mares, and Yorkshire, Cleveland, Bay or Hackney horses. The Yorkshire coach stallion is preferable to the Cleveland Bay and the Hackney, and if you get good whole colors is preferable to either, as you get better action. Lighter horses, such as victoria pairs and dog-cart runabouts are from 15 to 16 hands in height and weigh from 950 to 1,150 pounds. These want action, and you can't get too much. To get them, breed a well-bred mare to a Hackney or standard-bred stallion. The Hackney is best for action, but the other is more rapid. The combination horse, or the ride and drive horse, should be a good color, and about 15.3 hands high, good to ride or drive, and able to go at least 8 or 9 miles an hour. They are best if bred from a thoroughbred horse. The park Hack must be a very handsome horse, 15 to 16 hands high, with some action, and color here is not so important. They ought to have a good deal of thoroughbred or pony blood in them. Hunters should not be more than 16.1 color is of no consequence, they must be strong and have good staying powers. They should be from a well bred mare and a thoroughbred horse.—"Farming World."

#### AN EXPERIMENT IN ANIMAL-BREEDING

In 1902-03, the yearly average of the Cornell herd was 301 lbs. fat—a gain in 10 years of 28 lbs. Not great, perhaps, but a good deal, from where they started. It is not easy to break records. It has taken years to lower the race track records a few seconds. The above record is remarkable for the breed, and would be much larger in the equivalents for butter.

The selections saved, after 19 years of experiment, number 6 from the grades, and averaged in 1902-03, 321 lbs, as against 330 in 1902-3, or no gain to their credit. There are 6 left of the full-bloods that averaged in 1902-3, 314 lbs., as against 193 lbs. in 1892-03—a very decided gain. In other words, in this case, the man who had chosen pedigree in preference to performance, would have gotten the greatest gain.

Were it not for the fact that every one of the calves dropped by these six full-bloods was raised, I would not think that the experiment proved much, for the grades have made about the same amount of butter. I suppose one can get much comfort out of the experiment, for either side. To me the value is greatest in the fact that by the use of good, well-bred stock, of a pure breed, which can be bought very reasonably now, one can get such a herd and such results. The Professor concluded by asking us to ponder on these suggestions: 1. What, if any, are the limitations of selective heredity? 2. The distinction between a cross-bred and a grade. 3. The use and abuse of inbreeding.

Glista and Netherland Remus produced Glista, 2d. She was served by Netherland Remus, her sire, and produced Glista Netherland. Glista 2d. was served by this son four times and produced four of the six cows in the herd in 1903. Glista 4th, her sister, producing the other two: Query: "Was this inbreeding the cause of the increase?" The cows from the two sisters of same breeding are of two types. Query: "Why do they differ, and why does not their offspring from the same sire show a mingling of these two types?"

The question we asked, "Which would you choose for a sire to head your herd, the bull calf without rudimentary teats and a good pedigree, or a really fine calf with well developed teats and all the signs, without a pedigree?" Answer: "I would take the pedigreed calf." To what extent would you let pedigree govern? was answered: "If it can be expressed in figures, 70 per cent."

I assume that when we say, "Like produces like," we mean that the combined likeness of all the ancestors (i. e.), the breed and not the particular individual before us, is meant. The extra, perfect animal may be a "sport", a variation from the average type. Sports are uncertain for breeding. There is plenty to study about yet.—C. E. C., in Ohio Farmer.

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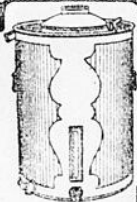
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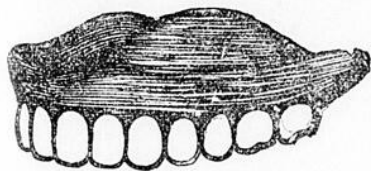
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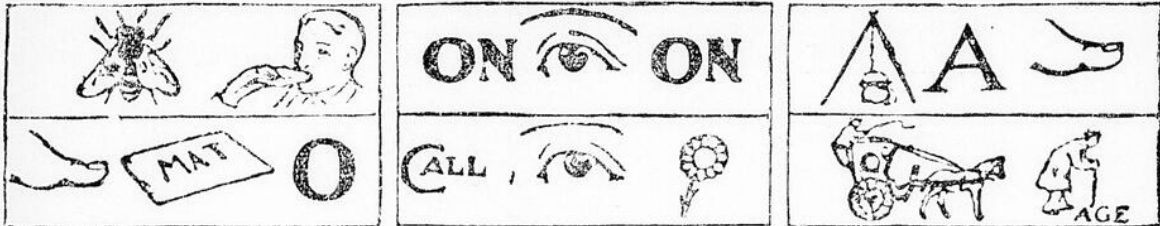
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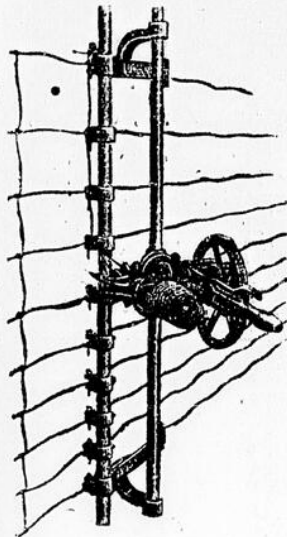
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