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Notes by the Way.

Rearing calves.—We have reared many calves on skim milk, with a slight addition of crushed linseed steeped in boiling water, but we have no doubt that *separated* milk would answer even better on account of its superior freshness. Each calf should have, daily, after the first fortnight, during which time it should have its dam's milk unskimmed, about an ounce a day of flaxseed mixed as above, and an increase of an ounce each week till the dose amounts to 8 ounces daily. At 12 or 13 weeks old, the calf should be fit for the butcher. About 94° to 98° is the proper temperature.

Separated milk.—A correspondent asks : What is separated milk worth, per 100 lbs., for pigs ? It depends upon many circumstances ; but we should say it ought to return at least 20 cents, and in places where good small 60 lbs. pigs are marketable, like the West-End district of Montreal, it might perhaps be worth as much as 30 cents. (1)

Potato-beef.—Experiments have been carried on lately in France on the fattening of butcher's beasts with potatoes. We have always found beef from animals fed on this tuber alone, to be soft and pappy, but the addition of bean- or pease-meal, would probably cure that defect. The effect of this feeding in the experiments in question was that the live weight of the animals increased as well as their yield in clear meat, and that their flesh acquired an *exceptional succulence*, as we should have expected ; just like the beef fed on distillery-wash ; as both foods are almost wholly composed of carbohydrates. The profit seems to have been satisfactory, as in seventy-one days of this feeding the net profit for the Charolais cattle was 130 francs., for cross bred Shorthorn-Morveaux 136 francs., for Limousins 226 francs., and 12 francs. a head for sheep.

Loss of hay crop.—We mentioned in our last issue a remarkably fine crop of clover and timothy that was growing in an orchard off Sherbrooke Street, Montreal. Unfortunately, it was allowed to stand ten days too long. Fit to cut on the 15th June, it was not mown till the 25th, it "was kneed down," from luxuriant growth, and at least a third of it was left by the scythe uncut. Such a pity ! there might have been a second crop of clover fit to mow by the second week in August, and a third ready for green-fodder or silage towards the end of September.

Waste of pasture.—Close to the above orchard are two pastures ; one a very fine 3rd year grass, the other older. The latter was fed off first, and not being heavily stocked, is now one mass of bunches ; the former was not begun till the grass was up to the cows' hocks, and at least half of it grew up to seed-stem and was wasted. No wonder people "don't hold with permanent pastures" ! In both fields the ox-eyed daisies and chicory are abundant, and they are now ready to scatter their seed. The only thing to be done in such cases is to pass the mower over such pastures as have grown beyond the stock : this would, at any rate, keep the

(1) In England it is valued at 40 cents. E.

growth level and prevent the seed-stalks from running up. We love a liberal mind, but we abominate wastefulness.

Dew-ponds.—We mentioned the other day the fact that on the chalk hills of England, which extend from Dorsetshire in the S. W. to Yorkshire in the N. E., sheep when on the summer pasture required water, though they never drank in the hot weather when on the more succulent grasses of the low-lands. We were reminded of this by a paragraph, descriptive of the "dew ponds" made "on the chalk" in Hampshire, which, we append :

DEW PONDS.—In some of the English chalk hills where shepherds feed their flocks, wells are few and far between. Now, water is as necessary for sheep as human beings. Many years ago a very simple plan was employed for the purpose of collecting water, and this plan is in use to-day in certain parts of England. A depression in the ground is formed and made water tight by filling it in with clay. If proper care has been shown in choosing a situation for the pond, it will be found that enough water gathers in it from the rain, dew, and the evening mists that hang about the hills, to satisfy the wants of the sheep. In fact, so excellently do these ponds answer their purpose that many of them on the Hampshire hills are never dry. The rural folk call them dew-ponds.—Ex.

We never met with these ponds except on the chalk (particularly well made in Yorkshire) but doubtless they would answer well in any part of this country if bottomed with a foot deep of well beaten clay. There is a full description of these ponds in an old number of the Journal of the R. A. S. of England, but, unfortunately, we left all our Journals in England. Perhaps, it might be found in the library of the National History Society of Montreal.

Booth's Shorthorns Sale.—This sale, which took place in June last, was as it ought to have been, highly successful. One of the cows sold for \$1,800, and the best bull for \$1,700, the average was as follows : 37 cows, £5,161., 16s., average £139., 10s., 2d. eleven bulls £1,334., 12s., average, £121., 7s.

Silage and impotency.—Complaints are being made in one or two quarters about silage causing impotency in bulls. This seems to us to be an absurdity. There is nothing in silage to produce any such effect, though of course, silage of corn given alone is not a very strength producing food. We can understand corn infected with *ergot* producing abortion in females, but nothing but personal experience would convince us that silage would cause a male to lose his procreative power.

Manuring turnips.—Constantly we see questions of the simplest kind put to the editors of agricultural papers in the States, and, we are bound to add, the answers are correspondingly simple in many instances. What is the good, in our present state of knowledge, of saying that "fifteen tons of turnips contain 54 lb. of nitrogen, 34 lb. of phosphoric acid, and 117 lb. of potash, and that, therefore, a manure containing those constituents in that proportion will, all things being equal, produce that weight of crop ; as thus :

"MANURING TURNIPS.—Will a mixture of acid phosphate, cottonseed meal and muriate of potash be a good fertilizer for turnips ? In what proportions should they be mixed, and how

much of the mixture should be applied to an acre ? W. H. P., Greenville, S. C. [Fifteen tons of turnips, exclusive of tops, contain 54 lbs. nitrogen, 34 lbs. phosphoric acid, 117 lbs. potash.

| | Nit. | P.A. | Pot. |
|--------------------------------------|------|------|--------|
| 1000 lbs. cottonseed meal contains.. | 66.4 | 26.8 | 17.9 |
| 50 lbs superphosphate contains. | 0.0 | 8.0 | 0.0 |
| 200 lbs. muriate of potash contains | 0.0 | 0.0 | 98.0 |
| | 66.4 | 34.8 | 115.9" |

We will engage to say that 300 lbs. of superphosphate, 28 soluble, with 250 lbs. of East-Indian bone-meal, will produce a much better crop of turnips, at a much cheaper rate than the above, which, even at present prices, would cost nearly twenty dollars an acre ; whereas, the bones and superphosphate would not amount to seven dollars. Our friends in the States know all about corn, but are terribly backward as to root-growing.

Practice vs. science.—"Science," says Mr. Snyder, "tells us how much casein, sugar, and albumen there is in skim-milk, but it is hard to tell the exact feeding value, and it seems as if hogs can get more out of it than the scientific man can." Just so ; and, as we have lately shown, scientific men begin to admit that the 90% or whatever it is, of water in the root-crop is a very different thing, as regards animals' food, to the water we draw from our wells.

Pigs.—Do not try to force your weaning pigs too much at first. You may make them fat enough, but they will not be as growthy as if they were led along more gently. Some barley, or corn-meal, with a few pease ground up with it, and clover, tares, or other green-meat, for summer feeding, will bring them along nicely, and make them fit for slaughter in the fall without their being "put up to fat." Long, half-fat hogs are in request for hams and bacon at Liverpool, though London will take them fatter. Mr. Theodore Lewis, of the Minnesota Farmers' Institutes, recommends "a little oil-meal" ; we do not.

Sowing Turnips.—Will you advise a young farmer as to the best way of sowing turnip seed broadcast by hand—how much land-plaster or wood ashes to mix with one pound of seed, and if to sow with a full hand (as when sowing grain) or with thumb and two fingers, as when sowing grass seed—also the number of paces ? A. Y. F. Hartford County, Conn. [Turnip seed may be sown both ways. The better and more common practice is to sow about three paces wide, distributing to the right and left—that is, sprinkling the seed over the ground instead of making a fall "cast" to the left as in sowing grain. Under favorable conditions, good turnips can be grown sown broadcast and without culture ; but the safest and most satisfactory way, unless the conditions are unusually favorable, would be to sow in drills, 30 inches apart, and cultivate, thin and dress up with the hoe. In any case, use a little fertilizer containing a relatively high per cent. of potash, medium of nitrogen and low of phosphoric acid.]

The above, from the *Country Gentleman*, is about what we should expect to see from a "pure theorist" of the old Liebig school. Next month we hope to republish an article, that appeared some years ago in another pe-

riodical, on Lawes' experiments on growing turnips; in it will be seen that the manure for turnips is phosphoric acid.

Butter.—Never has good butter been so easy to be found in Montreal as this last spring. Is it possible that good makers are really being paid decent salaries? They will not, we hear, work for the wretched pay offered them, in some places, of late years, and it is the same in the States, as the following, from *Hoard*, will show:

"While it cannot be said that good wages will always secure a competent buttermaker, it stands to reason that such a man will not accept low wages. This is the way Mr. S. put it:

"Several creamerymen have written me asking for a buttermaker for a few months at \$35 or \$40 a month, and I have written them that I am not recommending that kind of butter-makers. I struck one creamery that failed, and wanted to start up again. Happening to meet the manager.

"I want a good buttermaker," said he.

"What'll you pay?" I asked.

"Well, we paid the other man \$40 a month, and could not make the creamery go at that, so I don't see how we can afford to pay any more."

"Well," said I, "you got a forty dollar a month buttermaker and you'll fail again. I won't recommend anybody for less than \$60 a month."

"But," said he, "we won't get but about a thousand pounds of milk to start with."

"That's all right," I said, "but you won't get that much unless you have a good man to make it into butter that will sell. The best way to get more milk is to get somebody who can handle it and make money."

Hampshire-downs.—As we have been asked several times for the names of the best flockmasters of the Hampshire-down country, we give the following list of prize-winners at the late county-show:

CLASS PRIZES.—SHEEP.—Hampshire downs—Shearling Rams: 1, J. Wrightson; 2, R. Coles; 3, J. East; r, T. F. Buxton; hc, J. A. and T. Palmer; c, M. Arnold, T. F. Buxton.

Rams, any age: 1 and r, T. F. Buxton; 2, C. Coles, c, W. T. Twidell.

Three Shearling Ewes: 1 and r, J. Flower; 2, J. East; c, A. de Mornay.

Ram Lambs: 1, J. Flower; 2 and r, T. F. Buxton; 3, E. Whalley-Tooker; hc, J. East; c, W. T. Twidell, A. de Mornay, J. Barton.

Three Ram Lambs: 1, T. F. Buxton; 2 and c, J. Flower; 3, C. Coles; r, J. A. and T. Palmer; vhc, H. N. Carlisle; c, J. Barton.

Three Ewe Lambs: 1, T. F. Buxton; 2, J. Flower; 3, C. Coles; r, A. de Mornay; vhc, J. East.

A simple barometer.—A barometer is an instrument used to determine the relative weight of the air. As usually made, it consists of a cup of mercury with which is connected a graduated glass tube. From the upper part of the tube the air has been exhausted, thus forming a vacuum, and the height of the column of mercury in the tube denotes the weight of the atmosphere.

Dry air is heavier than moist air; just as a bushel of dry wheat weighs more than a bushel of damp wheat. The drier, then, the air, the greater pressure it exerts on the surface of the mercury in the cup, and the higher the mercury rises in the glass tube.

But a very much cheaper and almost equally serviceable barometer can be

made at home. Take a wide-mouthed glass jar—a pickle-bottle will do—a clean Venice oil flask, and half a pint of clear water. Pour the water into the jar, letting it come to within one third of the top, and insert the oil flask upside down in the jar, so that the neck of the flask will just enter the water. Voilà tout.

If the atmospheric conditions are favorable to clear, fine weather, the water will rise in the flask; if, on the contrary, a storm is approaching, the water will fall. The air affects the water just as it affects the mercury.

Second crops.—You have sent your early potatoes to market: why not try for a second crop of some kind? There are ten weeks of growing-time, at least, before you: suppose you follow the potatoes with a little rape. It is not costly to grow, as of course the potatoes had dung applied for them, and the horse, and hand-hoeing, the digging and harrowing in getting up the crop, will have rendered the land extremely friable. The preparation of the land seed, etc., will come to something like this per acre:

| | |
|----------------------------------|--------|
| 1 grubbing..... | \$0.30 |
| 2 harrowings..... | 30 |
| 6 pounds of seed and sowing..... | 80 |
| 1 rolling..... | 20 |

\$1.60

And for this trifling sum of one dollar sixty cents you will have hearty food that will finish off your lambs in such style as will content the butchers who buy them and the people who eat them.

If your land is very stiff, clay soil, it must of course be ploughed instead of grubbed, as it would be dangerous to let it lie on the flat without water-furrows during the fall rains. This would add to the expense, but the sheep would pay for it, and the gain in the next year's grain-crop would be great.

Canadian vs. American cheese.—Here is a pretty story: from the *Vermont Farmer's Advocate* too:

Canadian cheese has a higher reputation in England than American, although, in point of fact, there seems to be no good reason for this preference, as will appear by the following statement, made by Mr. Jennings, in regard to some cheese that was recently shipped to England.

"It was said by some who claimed to know, that when the Northern New York cheese were on board the ocean steamer, or after they had reached their port of destination, the American factory brands were removed and Canadian brands affixed, thus assuring their sale as "Canadian Full Creams" in the Liverpool and other English markets. But there is no doubt but, on quality alone, the cheese would have easily passed as Canadian as it was equally good. These figures show that, so far as Northern New York cheese is concerned, the statement made by a speaker at a Western dairymen's meeting, not long since, that Canada cheese outsold the American product in the English market by a cent a pound, was incorrect."

The deduction from the premises seems curious.

Professor Huxley, the great philosopher, is dead. In the *Vermont Farmer's Advocate* he is correctly described as an agnostic, but we doubt Dr. Hoskin's derivation of the term, which he says "comes from the Latin *agnosco*, I acknowledge, and not from *ignosco*, I am ignorant. The true de-

rivation is from the Greek *agnōstos*, not knowing, ignorant of, from a privative, and *gignōskō* to understand, to gain knowledge of.

Alsike clover.—Has any one had any difficulty with making butter from milk produced by cows fed on Alsike clover? And what is the new theory about the Jerseys overcoming difficulties? Does any one expect to make really fine butter on clover alone?

Alsike and Butter.—I have heard farmers say that alsike clover makes poor butter. I have grown it for 15 or 20 years, but have not noticed bad results from it. I keep Jerseys and they always make hard butter, summer and winter. Some say it makes soft white butter, not fit to eat. E. H. Rose, N. Y. (When cows are fed a highly nitrogenous ration, the butter is not so firm and aromatic as when fed on a carbonaceous one. The Jersey breed of cattle measurably, though not entirely, overcome this difficulty. We presume the alsike clover is mixed with grasses and other plants and therefore does not have the deleterious effect that you speak of. Certain it is, that clover and grasses mixed make better butter, as customers judge it, than that made from clover pasture alone.)

Country Gentleman.

Dairy Short-horns.—"Some of the devotees of the old-fashioned Shorthorn dairy cow appear to have awakened at last to a perception of the fact that breeding and handling for beef and prizes in the show-ring have not tended to conserve and much less to improve the performances of their favorites at the pail and the churn. The Breed-Tests at the Columbian Exposition and other influences have stimulated some of our Short-horn friends to make an attempt to recover some of the ground lost, and to this end recourse has been had to some of those herds in England noted for creditable dairy performance. It is said that Mr. John D. Wing of Millbrook, N. Y., has already received a consignment of fifteen cows and a bull thus selected, and that another breeder expects a similar consignment at an early day.—*Hoard*."

If this is a true statement we rejoice at it. We only hope Mr. Wing knew where to go for them. (1)

Grains.—What a happy State must be Vermont, for:

There are no breweries or distilleries in this State, except those of an illicit character, and so, there is little danger of cattle being fed on refuse taken from such places, except, possibly, along the line contiguous to other States and Canada. Nevertheless, the following from *Hoard's Dairyman* will be of interest to those who may remember the great outcry that was raised against distillery fed cows, and "swill milk" by the New York press a number of years ago, and which, for once, showed the power of the press in suppressing the unhealthy practice, and it further shows that evils that are checked in one quarter will crop out in another, if there is the slightest opportunity.

"Senator Morrison, chairman of the special committee of five members of the Illinois legislature appointed to investigate the feeding of cattle on distillery slops, has submitted a report signed by all the members of the committee. The report says the commit-

(1) See the sale of Mr. Buxton's Dairy Short-horns, p. 159 of this number.—Ed.

tee recommends legislation which will prohibit the feeding of wet refuse from breweries, distilleries, or factories, to animals. It recommends this, having in view the public health.

Wet refuse taken from breweries sours and ferments and in that condition is not a food which should be fed to cattle giving milk. In this condition germ life is rampant and bacilli rapidly form. Taken into the animal the principle secretion, milk, must be and is affected. That milk is then brought to the centres of population, and a very large proportion of it fed to the most delicate human organism, the infant. It sets up pathological conditions which largely increase the death rate."—*Vt. F. Ad.*

But are they not over-doing it? Care for the health of cattle is all very well, but the principle of paternalism, or, as we English think it, *Grandmotherism* may be easily carried too far. Too large rations of brewers' grains are not healthy, but a moderate quantity, say, 2 pecks a day with plenty of other food, of a nitrogenous kind, such as beans, pease, clover, &c., will injure no cow, and really, as far as regards food, cowkeepers may safely be left to themselves. When at Kingston, we saw daily 800 or 900 head of steers, cows, and old bulls, eating, or rather drinking, all they could hold of slop, and fattening as fast as any beasts we ever saw. More healthy animals could not be. We engage to say that every cow-keeper in London and its neighbourhood employs grains or wash for his cows, and the breweries in Montreal and Lachine get rid of all their refuse for the same purpose.

Oatmeal.—It is a very curious thing that the quantity of oatmeal consumed by a man who lives principally if not entirely on it, varies with the kind of soil the oats grow on. Stephens says an ordinary week's consumption of a Scotch ploughman is 14 pounds, but it makes a great difference whether the oats come from clay or sharp gravels, in one case they do best for porridge, in the other for cake. Apparently, our Canada oatmeal does not answer so well in Britain as the Scotch meal:

"I am pleased to see Professor Wrightson's remarks on oatmeal, and I think I can still further corroborate what he says. I referred in my previous letter to an article on the subject I had written in the *Gazette* some years ago; the said article was prompted by reading the remarks of an American medical man on the use of oatmeal as food. He had nothing but evil words for the same, and condemned it as totally unfit for human consumption. This was so contrary to the experience of generations of North-country men and to the teaching of our medical authorities at home that I set about looking up the matter, and I came to the conclusion that the American man's remarks were quite true about American oatmeal—the porridge made from it is entirely too thin, and if one wanted a variety which would stick to his ribs, and enable him to set his face to a day's work, he must "gang North" for a supply. Some fifty years ago Canadian oatmeal began to be imported into Scotland, but people who bought a boll of it for porridge and cakes did not like it, and though it has improved since then, it is still quoted at 4s. to 5s. per sack (280 lbs.) less than home grown.

The differences between home and foreign meal, and between different samples of the home variety, are indeed very striking; and I have no

doubt that analogous differences would be found not only among other corn crops, but among all kinds of crops; and this, in my opinion, is as much due to soil as to climate.

P. McCONNELL, B. So."

Cider.—At a meeting of the Royal Commission on Agriculture in England, Mr. Radcliffe Cooke, Chairman of the National Association of Cider Makers was examined. We condense part of his evidence:

"A soft, mild climate and rich loamy soil suit the apple and pear.

It is an error to suppose, as Mr. T. A. Knight did, that no sort of grafted fruit lasts longer than the tree from which the graft was taken.

American blight, the winter moth, and the codlin moth, which he took to be the same as the apple-blossom weevil, were the most destructive. It was, doubtless, possible to eradicate these by washing the trees, spraying with insecticides, &c., but it was of little use for one farmer to adopt these remedies if his neighbors neglected to employ them." Precisely, what strikes one about the potato-beetle. If about the end of August, or at all events when the last brood is hatching out, every potato grower would bravely set to work with Paris-green or London-purple, in a very few seasons the pest would be exterminated. But as long as the crop of the year is safe, the brute is allowed free scope, and hides itself and its young to await another year.

(Henley-on-Thames.—Excuse an interpolation: our son has just informed us, with great glee, that our dear old College, Trinity Hall, Cambridge, (1) has beaten the Cornell crew easily. *Vogue la galère.* Fifty-four years ago, we pulled bow in the Trinity Hall boat.

"There is a notion abroad that cider and perry can be made from any kind of apples and pears. This is a mistake. Cider made from dessert-fruit is poor and thin, owing to the absence of constituents, the chief of which is tannin, which are essential to the production of cider and perry of prime quality and long keeping."

The best cider apples are rather bitter than sweet to the taste; but by dint of keeping in heaps for two or three weeks before crushing, the starch becomes transmuted into sugar, much as the starch of malt undergoes the same change in the brewer's mash-tun. It is very much to be desired that orchardists in general throughout the province would visit the farm of the Trappists at Oka, where we hear that lessons are given at certain seasons in the manufacture of cider, though we fear that, owing to the rigour of the climate, there is no hope of the still more delicious drink made from pears ever being common on this side of the Atlantic.

Fat in milk.—Another statement from a practical man in the great dairy-county of Gloucester, England, has just reached us. Our readers will remark that it completely agrees with what we have times out of number given as our experience in this periodical:

SCIENTIFIC FOOD TESTS FOR CATTLE. Reports are going the round of the papers that certain scientific tests have shown that food taken by dairy cows has no influence on the quality of milk, only on the quantity. If believers in that doctrine will feed their dairy cows on straw and mangel in place of hay,

(1) This may almost be called our family college, seeing that the fourth successive generation is now represented there.—Ed.

green forage, cake, and meal, they will soon find the quality of milk reduced to such a degree as scarcely to give any cream at all, and every practical dairyman knows this from experience. If "science" is responsible for any such reports, then science has made a mistake here, although it has helped practice in various branches of agriculture. Such food as cake, crushed oats, wheaten meal, rich pasturage, or other green forage will improve the quality and increase the quantity of milk in twenty-four hours. It is true, however, that certain cows turn such diet to a better account in milk production than others. There are some cows to which no amount of good feeding will impart a rich flow of milk, but there are none to which the good feeding will not at least improve the quality of milk.

Small crops.—Mr. Waldo F. Brown, a well known contributor to the "Country Gentleman," writes, in a late number of that paper: "There are hundreds of farmers in my county, half of whose income has come from wheat for a score of years past, who will not have any wheat at all to sell this year, and some will lack enough for seed and bread. As a sample of how the wheat is in my neighbourhood, from eleven acres on my farm we have about 4 bushels to the acre, certainly not to exceed 5." Why let such a crop stand to harvest? It must be an injury to the land, on account of the freedom it affords to all sorts of weed-growth. We, in England, should plough the field up, dress it down with harrow and roll, and sow turnips or rape, if the land were sheep-land; if heavy land, we should work it as a bastard fallow. It is safe to say that, if a crop such as Mr Brown talks of is allowed to stand till cuttable, the field will bear the marks of it for a whole rotation.

Oats after potatoes.—And here is another lively genius, whose name we do not know. He writes to the *Country Gentleman* to say that, were he "to seed oats on potato-stubble, the land should not be ploughed, but only cultivated"! If people in S. W. New-York, whence this reporter dates his letter, deal so unjustly by their land, no wonder the wheat-crop of the States is only one-third of what it ought to be.

"On a spring ploughed soil," he continues, "nearly destitute of humus, the sowing of grass-seeds is hazardous." Likely enough, but what has the farmer been about to allow his land to be "destitute of humus"? Why plough in spring if a fall-farrow gives a moister seed-bed for clover?

"Instead of rolling the land once, some soils should be rolled several times, not only to smoothe the land but to firm it." What an immense quantity of spare time a farmer must have in New-York State to be able to roll a field "several times"!

FARM-WORK FOR AUGUST.

Haying, except the second-crop of clover, will be, or ought to be, over by the first of the month. We strongly advise farmers who have a silo, to pack their second cut of clover into it. In most years, the weather is showery when this crop is fit for making; it turns mouldy in the stack or barn if the least dew is on it when carried, and nothing is so likely to cause broken-wind, or heaves, as mouldy clover.

The horse- and hand-hoe will be still in requisition between the rows of late sown swedes, &c.

Don't forget to look over the potatoes to pull out any large-growing weeds; and if there are any signs of disease or of a fresh hatch of beetles, a dressing of Bordeaux mixture, with some Paris-green, will not be wasted. It is not too late to for the insect to injure the crop.

Cut barley, for malting, when *dead ripe*; other grain on the *green side*.

Now, if not before, the cows will be glad of the green-meat you will have ready for them. See that they are not allowed to fall off in their milk-yield before they get the range of the stubbles.

Dip your sheep and lambs a second time towards the end of the month. The 1st August, O. S., which answers to our present 13th August, used to be called "Lammas-day" (1) because the lambs were weaned at that date. When weaning, remember that the lambs will not fret after the ewes half so much if the dams are taken away and the lambs left behind them in a pasture they are accustomed to, as they would if they are taken to a field quite strange to them. But we fancy in all well managed flocks the weaning, in this part of the province, has been already done.

Your young pigs will enjoy themselves in the clover-field. See that they are not only ringed but that their rings keep in their noses.

This is the month for cleaning your stubbles in preparation for the hoed-crops of next summer. As fast as the grain-crops are carried from the land where no grass-seeds were sown last spring, grub, scarify, or, if you have no proper implement, plough, in shallow furrows, the stubbles. Harrow and work out the couch, and, if you make good use of our glorious autumn weather, you will find the work of next spring much lightened.

Montreal, July 10, 1895.

Mr. A. R. JENNER FOST,
Editor *Journal of*
Agriculture, City.

Dear Sir,

Hogs have declined somewhat as Export demand has fallen off on account of the heavy receipts from Denmark.

Prices here are now \$4.75 off cars for choice hogs.

Yours truly,
The Laing Packing and
Provision Co. L^{td}.

The Flock.

SHEEP WASHING.

By Jas. Bowman, Wellington Co., Ont.

The question, does it pay best to wash or not to wash? is now frequently heard among farmers. The farmers we mean are those who look to the wool crop from the standpoint of getting all they can from it, with no regard to preparing sheep for show, &c. To such, from our experience, I would say Yes. To enlighten ourselves in this matter we selected two high grade Shrop. ewes, which would be called medium woolled sheep; they were about as near equals in fleeco, size, condition, age, &c., as they can be got; we washed one and left the other un-

(1) i. e. Lamb's mass.

washed. The washed one clipped five and a-half pounds, the unwashed one, seven pounds. Dropping one-third on the unwashed fleeco, which is the rule buyers generally follow, leaves a balance in favor of washing, of about five-sixths of a pound, or about seventeen cents when wool is worth twenty cents per pound; this will pay quite well for the washing operation. The writer is of the opinion that the profit of washing would be greater in long-wooled sheep, but, in the case of very fine-wooled sheep, such as Merinos, thinks there would be more money in leaving them unwashed; and with Southdowns it might just come out about even, as there is so much more yolk in their wool. I would be pleased to hear from some of the fine wool breeders, and also from the coarse wool breeders, as this is a subject worth discussion. Let us find out the best plan and stick to it. Perhaps our obliging Experimentalist at the O. A. C. could give us some valuable information on this point. I may say for Mr. Zavitz, that I believe he is intensely interested in carrying out thoroughly every detail of any experiment that he takes in hand; and it is our privilege, as farmers, to suggest to him experiments that we would like to see tried. One thing I can assure all enquirers is that he will use you courteously, and do the best he can in your case. In case of an expensive sheep in high condition, would say that it does not pay to run the risk of washing; have known of a ram of this kind dying in washer's hands.

The washing.—How to manage when a stream is not convenient, as we do not believe in driving a long distance on a hot day over dusty roads: It is much better to have a good-sized trough, filled with water, and let it stand until it has become partly warm. Eight or ten sheep can be washed in this way without changing the water, and it will be found that after two or three are washed that the operation is greatly aided by the yolk that has come out of the fleeces already washed, as water will feel quite soapy. When each sheep has been thoroughly washed in first water, there should be rinsing water on hand to pour over them while they are in a standing position, and the wool well-squeezed out until the water runs off the wool clear, when they will be finished. There is a great deal less risk from washing in this way, as sheep are cooler than when driven a distance to wash. In cases where a stream is convenient, it is a good plan to have the washing place so arranged that water will not flow away too quickly, as the yolk, when mixed with water, aids the operation greatly. It must also be provided with a clear place to rinse.

After washing.—A clean pasture should be provided for sheep until clipping is done, which should be in from a week to ten days, to allow the yolk to get back into the wool, as it not only improves its texture, but adds to weight of same, which is a very important consideration in these times of keen competition and low prices.

Clipping.—There are many ways of clipping, and in cases where a large flock is kept, it is a matter of considerable importance to have contrivances to make the work as simple and comfortable as possible on both shepherd and sheep. I would suggest a contrivance for setting the sheep on, with holes for each of its legs to go through, made so as not to chafe the sheep. First set sheep on end and clip neck and all belly, arms and thighs, then set into the frame before mentioned, and it will be quite a com-

fortable operation for both parties. In cases where no frame is at hand, leave sheep on end as it was in doing neck and front, and clip right around back. If done carefully and not in too large a clip to each round, it will leave quite a nice job. Either of these methods keeps the sheep reasonably comfortable and prevents much struggling.

Doing up Fleece.—In first place, take off all dirty wool and any cotted portions, because, if buyer does this for you he will perhaps not use so much economy as you might, then spread the fleece on a clean place, the part that was next the sheep down; turn in the edges until it is about eighteen inches wide (or less in a small fleece), then start to roll at tail, and keep the roll tidy and compact; when neck is reached twist the neck piece into a rope to tie around the bundle, and fasten the end securely. If well done it will stand a good deal of handling without coming undone, and if well washed and kept clean from burs, chaff, &c., will present quite a tempting appearance to a buyer, which means money every time. Nothing pays better than a real good finish, in almost every marketable product.

Marketing.—Many farmers have fine and coarse wool, and in taking to market it is better to keep each grade separate, so that you will get proper price for quality

THE WOOL CROP.

By "Flockmaster."

By the time the May 15th *Advocate* reaches its readers, most of the high-class, pure-bred flocks, especially all yearlings and rams, will have been deprived on their fleece. The owners of such flocks understand their work well enough, and are usually careful enough about it, to require no further instruction, but to many of the less particular sheep farmers a word may not be out of place. In the rush of seeding, planting, &c., the poor sheep is too often allowed to go out upon the new grass without being docked, and before a week many of them are carrying a disgusting load, which only a very strong-stomached lamb will approach to take nourishment. This is one of several neglects in connection with the care of wool.

Washing.—When there is a running stream within a mile or two, a few of the neighbors club together to hold a sheep washing, which is usually done in a rough, careless style, and the wet flocks are driven home along a dusty road, arriving there in little cleaner condition than they left it; but the sheep have been "washed," which insures a better price per pound for the wool than if they had not passed through this trying ordeal. Now, is sheep-washing an advantage? Yes; if properly done, in a suitable place. There is no more suitable place than in a running stream, which can be jammed about waist deep, so that the sheep cannot touch the bottom with their feet. The flock should be penned in a yard beside the water, and one man should remain among them to hand the sheep to the washer. There is no need of throwing them in over head, and pulling them about as though they had no feelings. The sheep is one of the most timid of animals, and can be seriously injured by rough, careless handling in water. In washing, the wool should be taken in handfuls and squeezed, and moved until the water leaves every part of the fleece clean. The animal should then

be taken to an easy landing-slope, and helped out upon the green grass, where it will drip dry enough to walk home comfortably. In this walk care should be taken to keep them on the side, walking quietly, out of the dust. They should be kept in a clean grass field up to shearing time, which should not be done until from a week to ten days following, so that the yolk will have time to rise anew to make the shears run nicely, and also give the wool a better feel, and a trifle more honest weight.

If there is no convenient means of washing the sheep, the wool can be taken off in creditable condition by removing all burs, chaff, tag locks, &c., before commencing to clip. Because a certain dockage is made for unwashed wool, there is no excuse for allowing filthy locks to remain in the fleece. If a buyer is reasonable he will pay more for clean, unwashed wool than for filthy stuff; at least this has been my experience.

Shearing.—Sheep should always be brought in from the pasture and housed on clean straw the night before they are to be clipped. There is then much less danger of hurting them, and they will not be in danger of being rained upon, which will hinder the shearing until they have become dry. A very suitable place to shear is a clean, airy barn-floor or the like. Some shearers use a platform about two or more feet high, so that the back of the shearer has not to be bent so much in clipping. Whether on a floor or platform, it is well to make a cushion to rest the sheep upon, by tacking an old piece of carpet or sacking over a layer of straw or hay; this will tend to keep the sheep quieter, and give the shearer more comfort. Occasionally one sees a man shearing without fastening the legs of the animal operated upon. Unless sheep shorn in this free condition are exceptionally quiet, the fleece usually has to be gathered up from different parts of the surrounding and the shearer loses his temper many times in a day. It is a much better plan to strap the fore and hind feet of the under side of the sheep together; that is, while the right side is being shorn, the left legs should be tied, and vice versa.

Tying Fleece.—When the fleece is off it must be tied up in some fashion, and the neater this is done the less room it will take in storing, hauling, or shipping to market, and the better will it suit the eye of a dealer. I have found it quite satisfactory to spread the fleece inside down on a clean floor, then gather all the ribs and place them upon it, next, turn in the sides and ends, laying them flat until the fleece has the form of a strip from twenty to twenty-four inches wide, and almost as long as when first laid down. Now, commence at the tail end coil up until the whole fleece is in the form of a light, compact bundle. If preferred, a wool rope can be twisted out from the fleece to wind round and bind it together, or, as binder-cord is so cheap, it may be used, putting it around endwise and sidewise, as a parcel of sugar is tied up.

Marketing.—In almost every town and village there is some one who buys wool, paying so much for washed, and so much for unwashed but too often regardless of quality or condition. The careful wool grower does well to avoid that individual, and look round for some one who can appreciate superior wool well put up, and who will be willing to pay a little more for what suits his fancy than for inferior or ragged fleeces. It is well to sell direct to a manufacturer, or to a reputable

dealer, who appreciates the merits of a shipment, and will pay for it according to its value.

As soon as shearing is over, take or send him a fair, average sample of your wool in a letter, mentioning the breed, and you will soon receive his quotation in return.

SHEEP HUSBANDRY.

IN THE STOCKMAN of May 9, 1895, is an article by W. M. Barnum on "Build up the Flock," in which this language is used: "A sheep may be fed for one-seventh of the food that an ox requires, and will make a growth of nearly three-quarters of a pound a day for the first 280 days of its life. And for the next 600 will put on a half pound a day." We should like to have some of that kind of sheep in Ohio. We have never seen any sheep in Ohio that would weight 510 pounds. That kind of a sheep ought to bring 5 cents a pound which would be \$25.50 for a sheep, or \$178.50 for 7 sheep. We, in Ohio, would like to know the name of that breed of sheep, and if we could get any of them if we would go to Colorado. I wonder if W. M. Barnum is any relation to P. T. Barnum W. E. SAMPSON.

Harrison county, O.

The type-setting machine and the proofreader are doubtless responsible for this "mix." We can't tell just what Mr. B. did mean to say, his manuscript not having been preserved, and refer the matter to him for correction.

ABOUT SHEEP AND LAMBS.

I was interested in Mr. McCann's account of his pet sheep picking out and eating bitter weeds, as I have observed similarly. Such things are eaten by these animals for their health. If they can get all they want and the kinds they require, they will not be troubled with internal parasites; or if, in the absence of bitter weeds, they can have access to fresh pine boughs both winter and summer. The sheep at the South generally roam at large, and such are always free from internal parasites. It is natural for sheep to desire these correctives or preventives. Deprived of them on our cultivated fields, internal parasites ensue to sicken and destroy. They were not known in this country until the English sheep brought them from the almost weedless fields of Great Britain.

I also note with much interest in the same issue (April 25) what Mr. Woodward says in regard to hothouse lambs, the price he got for his the season just past, which was only an average of \$5 a head. I am interested in this, not because I am in the business of growing lambs, for I am out of it now, but because the last few years I have specially instructed several, in various states, how to grow them and when to sell. As would be natural, they report to me frequently. All agree that they got \$6.50 for their best; but none of them reported the least price. As \$6 and \$6.50 were the prices growers in my county received, and as all were sold in New-York City, I had concluded my friends were getting as good prices as this stock brought.

But from recent developments I have become satisfied that there is "an African in the paling" in New-York, and that this sable individual is none other than a combination of dealers

in the city to depress prices and keep them down for selfish purposes. I receive three New-York City papers, but none of them seem to report these lambs. I also receive two Boston papers, and both of them notice hothouse lambs, and usually agree in prices. About the first of March one of them had a market report from a correspondent located in New-York. He reported the hothouse lambs bringing \$10 @ 12, that hindquarters retailed at \$4 each and forequarters at \$3.25 each. This was the only New-York report I saw. At the same time the Boston market was quoted at \$9 @ 10. As the season advanced prices gradually declined to \$8 @ 9 and the last quotation, on April 13, was \$7 @ 8. These facts certainly give room for suspicion that "something is rotten in Denmark." Added to this, a person in Ohio who attempted last winter to grow these lambs for the first time, did not get his stable warm enough and consequently could not shear his ewes. He provided neither silage nor roots for necessary succulence; but depended upon bran and water for that. His lambs had the scours badly and did not do well, of course, yet he shipped to these same parties and received as much for his lambs as anybody. As another Ohio correspondent, who grows lambs correctly, said: "If this is the case, there is no more use in taking pains to grow lambs right." And then he added: "But even should the price keep down where it is I shall continue to grow lambs in the new way because I like it best. The care of lambs comes in winter when I have nothing else to do. There is no dirty wool to bother lambs when nursing, no ticks to trouble either ewes or lambs, and when spring opens for work both sheep and lambs are off my hands." But this eating up the lion's share of the profits at the New-York end must be circumvented. I have a friend in the city who has promised to investigate us opportunity may occur. GALEN WILSON.

MUTTON PRODUCTION.

Mutton production has been recently reduced to an art. Forty years ago it was an item of little importance in the skill of the sheep breeder of that time. Wool was the all-absorbing theme with this class of farmers, and a sheep of the conformation for the production of the finest and heaviest fleece was indeed to be envied by the owner of a less pretentious one. While Americans and the French were improving their sheep along lines of wool production England was doing what it could along the line of mutton production. The combination sheep struck this country but was considered of little value among the better and more skillful breeders. Mutton was not very popular in the markets of America, and it was not to be wondered at why this was so, when we learn that a sheep was bred for wool and was made to do service as a wool producer till its age precluded its ever making even a poor class of mutton. A sheep was made to do duty as a wool producer till its teeth began to drop, and it was sent to the market in a half-fatted condition. Here we had age combined with poor quality to please the palate of the mutton eater, and he was so well pleased that the next time he went to the market for meat he purchased something else.

The man who has had a taste of spring lamb in all its sweetness, like the sheep-killing dog, never forgets it,

and he may as well be fed on a well cooked saddle-flap as to again go back to aged mutton. Good mutton is not confined to breed alone, neither is it found alone in the spring lamb, but the sheep that will produce the quick mutton of good quality is the future sheep. Early maturity will be one of the principal qualities in the coming sheep. It will be of about the size of a 200-pound sheep when mature, and one-half of this should be produced the first year of its life. The profitable sheep will be this kind, and should have an absolute mutton conformation. This conformation is that of a long body, round barrel, hardy and early maturing. It must be full in the parts of the carcass where the best mutton is found.

Whatever breed that will best fill the bill in its environments will be the profitable sheep. Lambs should drop not later than the month of March, and should be sold at or about the age of twelve months except in market lamb districts. This of course only applies to such sheep as are sold, as it will always be necessary to keep up the breeding stock, which should be of a more mature age. The boy on the prairie and the pony will have passed away, and good barns and well fenced pastures will fill their function. The open shed, while very good for some purposes, will yield to the warm place for ewes at lambing time.

Good feed and plenty of it early bestowed on the flock will be the ever profitable mode of fitting the future mutton sheep. When the lamb is but a few days old it will eat if feed is placed where it can reach it. This is best done by providing lamb creepers. I have them, and it sometimes astonishes me to see how much feed these little fellows will consume. It is also astonishing how they grow if the feed is of the proper kind, and there is another astonishing time when they are sold for a very high figure and heavy weight when about one year old. I have had them bring more money at this age almost twice over than I had at one time sold three-year-old fat wethers for. Feed early in life and push them in the secret, and the transaction is bound to be profitable. It will be well to remember that the first 100 pounds will cost much less and sell for more than the second 100 on the sheep. This business is just in its infancy now, and it will not be long till its study and skill will be well understood by many rather than a few sheep breeders. Early maturity, quality of mutton, proportion of good mutton to live weight, and kindred characteristics will be the ruling ones in the future profitable sheep. GEO. W. FRANKLIN.

Iowa.

HINTS ABOUT SHEEP.

As the past year has been the most disastrous year on sheep that we have passed through for a long time, it surely would be well for us to stop and see if we can't see where we can make some improvement.

The first thing of importance is to secure a good foundation flock, ewes with good size, good breeding, healthy and vigorous. Get a good ram, a thoroughbred of the mutton breeds, such as the Shropshire or Southdown. Begin feeding in the fall about two weeks before turning in the buck a small quantity of bran, oats and a little oil meal. Increase gradually as the grass gives way and when winter sets in begin feeding the sheep all the clover hay they will eat and allow them plenty of salt and water where

they can get it at will. House them from the storm and all bad weather. And (right here is the keynote to it all) be sure before going into winter quarters (1) with them to dip them all with Cooper dipping powder. As I know of none better adapted to promote the growth of the wool and free them from all kinds of parasites that infect the skin of the sheep. Shear them as soon as the weather will admit. Give them plenty to eat and success is sure to follow, cold or hot, wet or dry. Sheep are like everything else, they must have good attention or bad luck, hard times, results of the election, etc., will be the cry. The time is now at hand when we must use both brain and muscle, get out of the old ruts and as it were be "wise as serpents and harmless as doves." The man that feeds his feed to sheep infected by ticks, lice and the like is throwing away his money.

National Stockman.

Household-Matters.

THE SUMMER BOARDER IN THE STATES.

The summer boarder is too important a source of revenue to many of our Eastern farmers to be slighted. Make the most of him, and treat him so well that he will come again—with his friends. Millions of dollars are paid into the pockets of farmers in New England, New-York and Pennsylvania by visitors from the city.

This is the kind of a "home market" to encourage, and it does not call for any tariff either!

If this is true, what is the matter with farming? Surely on any farm there is more work than hands to do it with.

Is there to be no little bit of recreation for the wife, who has, as a rule, done plenty of hard work during the winter. She must neglect some duties if she is to have boarders to look after and please during the summer.

A case which came under my own eye sight, here in Canada did not work well.

The boarders complained of bad feeding and left as soon as possible.

A garden, stocked with vegetables, was literally choked with weeds.

Tomatoes sprawled on the ground, for the want of tying up, and were eaten by the chickens as soon as they ripened.

Cabbages devoured by caterpillars, onion bed long gone to ruin for want of weeding, and many other vegetables all showing signs of sad neglect.

Had there been time to cultivate, and grow these vegetables, and give the boarders plenty of them there would have been no grumbling.

I have heard it said that one of the delights of boarding in a country house is the certainty of getting good milk and plenty of vegetables and fruit.

In the case I have spoken of it is another proof of trying to do two things and failing in both.

Surely the money made by cultivating the garden, and selling the produce would have paid about as well as trying to keep discontented boarders, let alone the delight of watching the growth and petting the weak, cultivating the strong, and the reward of having everything in abundance.

The only person who seemed to worry about this waste of seed and lost labour seemed to be the Editor of

(1) Not later than the 1st October in this part of the world.—Ez.

this paper, he tried in vain to induce them to save the tomatoes, if the sticks were got he would gladly show them how to train them, but the answer was I have no time, which was the case.

True is the saying. The Garden Shows the Gardener.

How to prepare, and keep good milk for baby.—STERILIZING MILK.—

Provide six or eight half-pint bottles, according to the number of times the child is fed during the twenty four hours. Put the proper quantity of food for one feeding in each bottle and use a tuft of cotton-batting as a stopper. Have a saucepan that the bottles can stand in conveniently. Invert a perforated tin pie-plate in the bottom and put in enough water to come above the milk in the bottles. Stand the bottles on it; when the water boils, draw the saucepan to a cooler part of the stove, where the water will remain near the boiling point but not actually boiling. Cover the saucepan and let the bottles remain in it one hour. Put them in the ice-box, or in a cool place in winter.

—Ladies' Home Journal.

GINGER ALE.—Four lemons, sliced, one tablespoonful tartaric acid, four tablespoonfuls of ground ginger, one and a half pounds light brown sugar and two gallons boiling water. When bloodwarm, add one cupful of home-made yeast or two compressed yeast cakes, and let it stand 12 or 15 hours in a warm place. Strain and bottle it, and tie down the corks; there is a simple knack about this that is worth learning. In two days it will be ready for use.

HOP BEER.—Steep one pint of hops in water to cover. Strain into one quart of molasses; add three gallons of hot water; when cool, (1) add one pint of yeast and six beaten eggs. In nine hours strain and bottle.

CLAM SOUP WITH POACHED EGGS.—One quart of clams, one quart of fresh milk, a slice of onion, three tablespoonfuls of butter, three tablespoonfuls of flour, a teaspoonful of salt, half a saltspoonful of pepper, a slight grating of nutmeg, and the whites of three eggs. Prepare the clams, from which the liquor has been drained, by washing them carefully, putting them into a colander which rests in a bowl and pouring over the clams half a cupful of cold water. Free the clams from any foreign substances which may still cling to them, cut off part of the black neck and separate the soft parts from the hard. Chop the hard parts, add to the liquor, to which has also been added the water in which the clams have been washed, heat slowly to the boiling point and strain carefully through a cheese cloth and strainer. Scald the milk, which must be fresh, with the onion; melt the butter, add the flour and add the whole to the boiling clam liquor. Add also the scalded milk, from which the onion has been removed, and the soft parts of the clams, removing from them first the liver which is unsightly. Cook for two minutes, longer cooking being apt to toughen the clams and render them indigestible. Season with salt, pepper and nutmeg, and just before serving, pour on to the beaten whites of three eggs. Beat the whites of the eggs only until they are stiff, not until dry. This soup will be found on trial to be delicious, and very appetizing in appearance. The

(1) Say 80° F.

garnish of eggs gives it a very pretty appearance and the same garnish may be used for potato soup, as well. The clam soup was served with wafers which had been buttered and crisped in the oven. Common crackers may be treated the same way and it is a good way to freshen up crackers which are a little stale.

Fruit Shortcakes and Desserts.—

STRAWBERRY SHORTCAKE.—A small shortcake is quickly made in the following manner: Sift one pint of flour, a heaping teaspoonful of baking powder and a pinch of salt together two times; add enough sweet milk to make a batter somewhat stiffer than for cake, and one tablespoonful of melted (not hot) butter. Beat thoroughly, spread about three-fourths of an inch thick in a buttered round pie tin and bake 15 minutes in a quick oven. If strawberries are used, and they are large, mash them lightly with a wooden spoon and sprinkle with sugar one hour before they are needed. When the shortcake is baked, cut around the edges and pull it apart. Spread both halves with butter, cutting it in little bits and dropping it on, but not pressing it with a knife. Spread the bottom are with berries, lay the other over it, put a layer of berries on top, and over all sweetened whipped cream. Send to the table immediately, and cut with a hot knife. Red raspberries, one part currants and two parts red raspberries, cherries, whortleberries, sliced peaches or warm stewed tart apples may be substituted for strawberries, and plain sweetened cream, or any sauce preferred, instead of whipped cream.

STRAWBERRY DUMPLINGS.—Make a biscuit dough of one pint of flour, half a teaspoonful of salt, one heaping teaspoonful of baking-powder, one tablespoonful of cold butter, and sweet milk enough to make a soft dough. Roll into a thin sheet, and cut with a large round cutter; put a few berries in the centre of each, fold the dough over, roll gently into a ball-shaped dumpling, lay on a buttered plate set in a steamer, and steam thirty minutes. Serve with strawberry sauce. Currants, cherries, other varieties of berries, or peaches may be substituted.

STRAWBERRY SAUCE.—Cream two tablespoonfuls of butter and one teacupful of powdered sugar, add, a few at a time, one basket of berries that have been massed with a wooden spoon. If the sauce has a curdled appearance, add one third of a cupful more of sugar, and set in a cold place, or on ice.

ROLL POLY.—This is an old fashioned and delicious pudding, when properly made. Make a dough of one quart of flour, one teaspoonful of salt, two heaping ones of baking powder, two tablespoonfuls of cold butter (chopped in), and enough sweet milk to make a soft dough. Handle as little as possible, and roll into an oblong sheet one-quarter of an inch thick. Drain two teacupfuls of tart cherries that have been stoned, in a colander; spread them over the dough, but not within an inch of the edge on either side; spread a cupful of sugar over, dredge with a tablespoonful of flour, and roll up like a jolly-cake. Wrap a piece of muslin out of hot water, rub one side with flour, wrap it around the fruit roll, sewing it up tightly and allowing room for it to rise. Lay on a plate, placed in a kettle of boiling water, and boil continuously for an hour and a half. Serve with foamy or any sauce preferred. Huckleberries are nice for roly-poly.—C. Gentleman.

HOW TO SELECT EGGS.

In selecting eggs try them in a pan of cold water. The freshest sink first. Those that float are to be rejected; or shake the egg gently at your ear, and if you hear a gurgling sound the egg is bad. Eggs should be kept in a cool place. To keep them for weeks grease with linseed oil and pack in either bran or coarse salt, with the small end downward.

SOFT BOILED EGGS.

Although one of the simplest forms of diet, there is nevertheless an art in preparing a soft boiled egg, so great an art that every householder is advised to provide herself with an egg boiler. For most persons one minute and a half is allowed; others, again, only one minute, and yet others, two.

When soft boiled eggs are served there should be placed conveniently a pot of fresh butter, pepper and salt, also a plate of cold loaf bread.

POACHED EGGS.

One quart boiling water in a spider with a tablespoonful of salt. Break the eggs, one at a time, in a saucer and slip carefully into the water. Cook till the whites harden and remove with a skimmer. Place on toasted bread (1) and serve hot.

SCRAMBLED EGGS.

Break into a bowl a dozen eggs, salt to taste; one teaspoonful of butter and one cup of milk. Pour all into a spider (which has been dipped in water to prevent the milk from sticking) with a silver fork or spoon. Stir the egg constantly until the consistency of a heavy custard. Serve at once, else it will toughen. Sprinkle with pepper.

Canning Material for pies.—Two quart cans are good, but, if your family is small, one quart cans are better. One of the latter holds materials for four pies, as thick as they ought to be. Pieplant or rhubarb is the first material of the season. To can rhubarb, peel it, cut into half inch lengths, cook in a porcelain kettle until soft, with a very little water. When soft fill your can and seal. Or peel, cut into $\frac{1}{2}$ inch lengths, pack tight in a jar, fill with cold water and seal. Both are to be used as if fresh. A third recipe is to peel, cut into $\frac{1}{2}$ inch lengths, and to every pound of the pieplant allow $\frac{1}{2}$ lb. sugar. Make a syrup of the sugar and when thickened a little put in the pieplant and cook until thick before putting into the cans. Brown or maple sugar is better than white for this purpose. This is for shortcakes in the winter. The children like it on their bread at school, and I don't think John will refuse some on his bread when he goes chopping.—(Adda Rondack.)

ORANGE MARMALADE is a desirable and convenient addition to the winter stock of "sweets." To every pint of granulated sugar allow one pound of oranges before peeling, then pare off the yellow rind only, avoiding the bitter inner skin of half the oranges, and put over the fire in cold water sufficient to cover; cover closely and simmer till tender; do not boil rapidly. Grate off the yellow rind of the remaining oranges and set aside; halve the oranges and squeeze out all the juice and pulp, rejecting the seeds and white skin. Put the sugar into a porcelain kettle, and to each pound add one pint of cold water; allow the frothed white of one egg to every

(1) Moistened slightly with hot water.

Ed.

three pounds of sugar, add while boiling, and skim till no more impurities rise. Cook for twenty minutes, or till thick and clear. Then take the boiled parings and put into a wooden bowl, and pound to a paste with a potato masher, put them into the syrup and stir and boil ten minutes longer, then add the pulp, juice, and grated rind; boil all together for half an hour, slowly stirring often, till it is a transparent mass. Correctly made, this is a condiment that very generally relishes, as well as a handsome dish of itself; but the merest bit of the white skin inadvertently left in will make it bitter. Lemons can be used in exactly the same way, but require at least one third more sugar.—*Katherine Armstrong, in Exchange.*

TOMATO CATCHUP.—Slice the tomatoes, boil until soft, then strain and measure. To one gallon of the tomatoes add $\frac{1}{2}$ lb. salt, $\frac{1}{2}$ oz cayenne, $\frac{1}{2}$ oz cloves, $\frac{1}{2}$ oz. celery-seed, $\frac{1}{2}$ oz cinnamon, $\frac{1}{2}$ oz allspice, $\frac{1}{2}$ oz ginger-root, $\frac{1}{2}$ oz garlic, 1 pint of vinegar. Use whole spices. Boil all together until reduced to thick pulp. Strain it, and when cool bottle and cork tightly. Tapioca is not a grain like rice. It is a starchy substance obtained by washing and scraping the roots of the cassava plant. Most of it comes, we believe, from Brazil. The cassava plant does not grow in the United States.

BITS OF PRACTICAL SCIENCE.

The rays of the sun kill disease germs on the surface, as in towels and blankets, but is insufficient for thick goods like pillows.

LAUGH.

There is absolutely nothing that will help you bear the ills of life so well as a good laugh. Laugh all you can. If the clothes-line breaks, if the cat tips over the milk and the dog elopes with the roast, if the children fall into the mud simultaneously with the advent of clean aprons, if the new girl quits in the middle of housecleaning, and though you search the earth with candles, you find none other to take her place; if a neighbor in whom you have trusted goes back on you and keeps chickens, if the chariot wheels of the uninvited guest draw near when you are out of provender, and the gaping of an empty purse is like the unfilled mouth of a young robin, take courage, if you have enough sunshine in your heart to keep a laugh on your lips.

Farmer's Ad.

LAWES ON WHEAT AND TURNIPS.

BY JENNER FUST.

(Republished by request.)

As I found lately, in a quarter in which I should not have looked for it, an utter misconception of the conclusions at which Sir John Lawes and his coadjutor Dr. Gilbert arrived after long experience in the cultivation of wheat and turnips, I propose to give an account of their earlier experiments in the use of manures for those crops, showing, 1st, why the experiments were undertaken, 2nd, by what means the land was prepared for them; 3rd, what the experiments were; and, lastly, what the experiments proved. If I succeed in my attempt, the reader of this Journal will see at any time by a glance at the analysis, whether any special manure which may be offered to him be fitter for one or the other of the two crops treated of in this article.

Somewhere about the year 1840, professor Liebig, of the University of Giessen, published his celebrated work on Organic Chemistry in its relation to Agriculture and Physiology, and thereby aroused such a spirit of investigation as had never before been known in England. Among other labourers in this field, Mr. John Bennett Lawes and Dr. Gilbert, commenced, in 1843, the systematic investigation of the action of chemical combinations when applied as manures to the most important crops of the farm; more especially devoting their attention to the proof or disproof of the startling announcement of what is commonly known as Liebig's mineral theory; which is embodied in the following sentence, to be found at page 211 of the third edition of his work on Agricultural Chemistry: "The crops on a field diminish or increase in exact proportion to the diminution or increase of the mineral substances conveyed to it in manure?"

In a subsequent edition of his work, Liebig still more strongly asserted the truth of his theory; for he says, speaking of the farms of England, "sooner or later they must see that in this so-called 'mineral theory,' in its development and ultimate perfection, lies the future of agriculture." This then was the assertion which Lawes and Gilbert set themselves to disprove: That all that the cultivated plants on a farm required for their support was the mineral matters contained in their ashes!

The first idea that struck them was, that in order to discover what a certain piece of land required to be added to it to enable it to produce a crop, it would be as well to make a chemical analysis of the soil. But, upon consideration, they were deterred from this by the reflection that the addition of a quantity of ammoniacal salt containing 100 lbs. of ammonia—an (1) unusually large dressing—400 lbs. of sulphate of ammonia—to the acre, would only increase the percentage of ammonia in the soil by 0.0007 or 10.000—the acre of land six inches deep being taken to weigh about 1,344,000 lbs. It is quite clear that no method of analysis would enable the chemist to appreciate the difference between the soil before and after the application. There, we see that they acknowledged at first starting the inutilty of seeking to discover the productive power of a soil from its percentage composition, a position that I have maintained many a time in this periodical.

The next question that the two partners in these trials asked themselves was: In what condition should the land be to make it fit for replying fully to the inquiries to be propounded to it? Now, the answer involved the following considerations:

Some system or other of rotation is invariably pursued in British agriculture; what is called a *course* of rotation is the period of years which includes the circle of all the different crops grown in that rotation; as a general rule, in the course of rotation no two crops of the same kind are grown consecutively on the same soil.

(2) Wheat, for instance, is never sown

(1) 100 lbs. of ammonia—about 80 lbs. of nitrogen.

(2) In parts of Hampshire, Sussex, and other southern counties in England, I have known the rotation to consist of two root-crops, both fed off by sheep, and then two grain-crops, the latter of which is invariably barley sown down with grass-seeds. The reason for this is, that if the barley were to succeed a fall-off crop of roots on these soils it would lodge, destroy the young grass, and not be fit for the maltster. A. R. J. F.

immediately after wheat, but only after some other crop has intervened, and at such a period of the rotation as, by experience, it is known that the soil will, by direct manure or by other means, have recovered its power of producing a profitable yield of that crop.

So, looking at these considerations, it was decided to begin the experiments on land that had just been put through a course of rotation, and which was, in consequence, in what may be called a *practically* exhausted state. And this exhaustion of the soil before trying experiments in manure on it, I esteem of the very highest importance; for I am sure that the utter failure of many of the numerous experiments tried at some of our agricultural colleges, notably at Guelph, may be attributed to the neglect of this precaution.

Thus, it was determined after a full investigation to proceed by way of *synthesis* instead of by the *analytic* method, and in carrying out the inquiry it was decided to take Wheat as the type of cereal plants and Turnips as the type of root-plants. Beans were also experimented on, but as these are rarely grown in this province, I shall not describe that part of the work.

And in order to carry out the experiments in so full a manner as to be convincing to the most sceptical, it was determined to devote 14 acres to the continuous growth of wheat, and 8 acres to the continuous growth of turnips. My readers will please to remember that the experiments began in 1843, and have been continued, though on a much more extensive scale, ever since.

Let us, first, pay attention to the series of experiments on the manures supposed to be adapted to the growth of wheat; for it is here that, as I believe, we shall see more clearly than elsewhere the utter futility of Liebig's mineral theory.

No one doubts that, in the case of vegetation in a native soil, the atmosphere is found to be a sufficient source of the nitrogen and the carbon; but agriculture is essentially an artificial process; and we shall see that, especially as regards the production of wheat, it is only by the accumulation within the soil itself of nitrogen, naturally derived from the atmosphere, rather than of the peculiarly soil-constituents, that our crops can be increased.

We have seen that all the experimental fields were selected when they were in a state of agricultural exhaustion—they had grown, that is, the regular number of crops which constitute a rotation since the application of manure. In fact, the wheat-field was regularly scourged, for, since the manured turnip-crop, it had grown barley, pease, wheat, and oats, without any further manuring.

In the first season, the 14 acres intended for wheat were divided into about 20 plots, and it was by the *mineral theory* that Mr. Lawes was mainly guided in the selection of manures, ammonia being, at that time, considered of less importance. Rape-cake, containing, besides some minerals and nitrogen, a certain quantity of *carbonaceous* substance, in which both corn and straw so much abound, was added to one or two of the plots.

I shall not apologise for asking my readers to attend most seriously to the repulsive mass of columns of figures that will pass under their eyes in the tables that follow. I believe with all my heart and understanding that the whole future of the agriculture of all lands, after the first virgin fecundity,

of the hitherto unbroached riches of their new lands has been doflowered, depends upon a thorough knowledge and appreciation of the perfect truth of the deduction made by our devoted servants and friends from the experiments now under investigation. The labours and studies of all preceding agricultural students fade into nothingness by the side of these noble benefactors to the human race.

Most of my readers will have no difficulty in drawing their own deduction from the following table; but as some readers are too lazy to draw even the simplest lesson from the clearest statement, I may as well say what I see in it:

not contain much nitrogen in such a small dose: probably about 8 lbs.—adds 7 bushels to the yield of an acre, surpassing the return made by the exhibition of such a heavy dressing as 14 tons of farmyard dung.

Here, I should remark that the superphosphate of lime was made by acting upon burnt bone-dust with sulphuric acid, and was therefore free from all organic matter.

If, as I well remember, the summer of 1844 was unpropitious to the growth of wheat, it was not so with the season of the following year. The same unmanured plot—exhausted still more by the growth of the wheat-crop of 1844—this exhausted plot, I

The plot No. 5, previously $\frac{2}{3}$ of an acre, was this year divided into two equal portions; one of these (5a) being unmanured and the other (5b) was dressed with carbonate of ammonia at the rate of 250 lbs. per acre: the yield by this pure but highly volatile salt alone was $4\frac{1}{2}$ bushels more than on the unmanured plot. And a very remarkable, though by no means enormous increase it is; for so highly volatile a salt is not at all suited as a top-dressing to a soil like Rothamsted, where the large proportion of lime would probably mighty soon chase away the ammonia into the air. Since these trials were made, the late Augustus Voelcker found that even in the case of the sulphate of ammonia, a fixed salt, the lime so largely contained in the soil of the College farm at Cirencester rendered that manure inoperative, unless it was well harrowed into the land: if used as a top-dressing, the odour of it was perceptible with in twenty-four hours of its application.

In section 2, we see the results of plots 9 and 10, the former of which received the previous year superphosphate of lime and a trifle of sulphate of ammonia, and the latter, superphosphate of lime and silicate of potass. In 1845, to each of these plots $1\frac{1}{2}$ cwt. of sulphate of ammonia, and the same weight of muriate of ammonia, were supplied: on plot 9, the salts were applied at one time, on plot 10, at 4 times. What was the consequence? The produce obtained by these salts of ammonia alone turns out to be $33\frac{3}{4}$ bushels, in the one case, and 32 bushels in the other: ten bushels more than the produce yielded by the unmanured land! In fact, the yield of No. 9 exceeds the yield of the land that received 14 tons of dung by about $1\frac{1}{2}$ bushel, and the yield of No. 10 about equals it. More; if we take the weights of total grain instead of the measure of dressed corn, we find that No. 10, manured with ammonia alone, has given 364 lbs. of grain and straw together, more than plot 2, manured with 14 tons of dung with all its mineral and carbonaceous constituents.

It was at this last point, that the excellent Phillip Pusey (1) aimed, when, forgetting that unlimited supplies of carbonaceous matter is furnished to

plants by the atmosphere, he said that "he feared the experiments of Messrs. Lawes and Gilbert would tend to excite an indifference to carbon." It was a difficult thing for a man of the times when nothing but bulky dressings of farmyard dung were used as manure, to feel that a stout man could carry on his back sufficient "moniment" to increase the yield of an acre of wheat by from ten to fifteen bushels. And I fear that, even now, we should not have to look far before we found a few thousand farmers, who not only do not feel, but do not believe in, the truth of what I have just shown to be the case. Further on, Mr. Lawes proves clearly that carbon is entirely unnecessary as a manurial addition to land: as an amelioration of texture and colour of the soil, it is quite a different thing.

TABLE I.

HARVEST 1844. SUMMARY OF RESULTS.

| DESCRIPTION OF THE MANURES. | Dressed corn per acre in bushels and pecks. | | Total grain per acre in lbs. | Straw per acre in lbs. |
|--|---|----------------|------------------------------|------------------------|
| | bush | pecks | | |
| Pot 3. Unmanured | 16 | 0 | 923 | 1120 |
| Pot 2. 14 tons of farmyard manure.. | 22 | 0 | 1276 | 1476 |
| Pot 4. The ashes of 14 tons of farmyard manure | 16 | 0 | 888 | 1104 |
| Pot. 15. Maximum produce of 9 plots with artificial mineral manures: | | | | |
| Superphos. of lime.... 350 lbs | 17 | $3\frac{1}{4}$ | 1096 | 1240 |
| Phos. of magnesia. 168 lbs | | | | |
| Phosphate of potass... 150 lbs | | | | |
| Silicate of potass..... 112 lbs | | | | |
| Pot 8. Minimum produce of 9 plots with artificial mineral manures: | | | | |
| Superphos. of lime..... 350 lbs | 16 | 1 | 980 | 1160 |
| Phosphate of potass... 364 lbs | | | | |
| Mean of the 9 plots with art. minerals..... | 16 | $3\frac{1}{4}$ | 1009 | 1155 |
| Mean of 3 plots with minerals and 65 lbs., each, of sulphate of ammonia..... | 21 | 0 | 1275 | 1423 |
| Mean of 2 plots with minerals and 150 lbs. and 300 lbs. of rape-cake respectively..... | 18 | $1\frac{1}{2}$ | 1078 | 1201 |
| Plot 18. With complex mineral manures and 65 lbs. sulph. am. and 150 lbs. of rape cake | 22 | $3\frac{1}{4}$ | 1368 | 1768 |

THE MANURIAL VALUE OF FOODS.

EDS. COUNTRY GENTLEMAN—The remarks of Prof. Collier (Dec. 20, 1894) I think call for reply, not from any personal objection to his very good-natured criticism of an article of mine, but for the reason that this question is one of importance to all concerned in the use of feeding stuffs, fertilizers, and manure. I have nothing to object to the main question—that is, that the residue of the food that goes into the manure has considerable manurial value. I have the best reasons for knowing this, having once brought a very poor sandy farm in New-Jersey into a profitable condition of fertility and productiveness, by the feeding of cows, at the beginning, wholly on purchased foods; as the farm itself was unable to support a skeleton of a cow, and a bony horse, when it came into my hands from the owner of this half starved live-stock kept on 75 acres of land. By procuring a herd of good dairy cows, and feeding them on the very best foods, trying everything in the category, to find the best, and using fertilizers and buying manure, at the first, the farm soon became self-supporting, and in time satisfactorily productive, as some of the your readers may remember who visited me, to look at my dairy.

I mention this, lest Prof. Collier may think, as he seems to do in regard to my acquaintance with the literature of agriculture, that I am assuming things without knowledge of them. But in fact I have a pretty wide acquaintance with all that has been written on the value of manure, and fertilizers as well, and I have learned from my studies that a good deal of what has been written on the subject is now obsolete, through the mistaken views of some of the very first of the scientific teachers of agriculture.

I remember when Liebig's mineral "theory" was "the rage," (1) so to speak, and men highly thought of—Sir Joseph Paxton among the rest—were apt to say that provided you supplied the crops with all the mineral matters found in the ashes, you could produce just what you liked. And even our chief apostle, Sir J. B. Lawes in a letter to me in regard to the growth of corn without nitrogenous manures, said that no plant in existence ever did or could get its nitrogen from the atmosphere—it must be supplied to it in fertilizers.

In these respects this is a world of change, and I have helped in my modest way to change some things, and I hope to set this matter in ques-

(1) See p. 160 of this number.

First, I observe that the natural yield of the more than agriculturally exhausted land at Rothamsted was, in a season which was a bad one for wheat, 16 bushels to the acre—4 bushels more than the average yield of the United States: next, that the addition of 14 tons of cake- and grain-fed dung to the acre, only raised the crop by six bushels of grain and 356 lbs. of straw; that the ashes of 14 tons of dung added nothing to the number of bushels, and that the weight of the bushel was by no means improved by the dressing but, on the contrary, was diminished by about $2\frac{1}{2}$ lbs.: there was, also, a slight decrease in the weight of straw. (1)

Out of the 9 plots treated with mineral manures, we have in no case an increase of 2 bushels; the yield of the average of the 9 being not quite 17 bushels. On the other hand, we see that a *soupeon* of a nitrogenous manure—for 65 lbs. of sulphate of ammonia (=15 lbs. nitrogen) is a mere pinch of snuff, and the rape-cake does

(1) This is really very surprising at first sight; but when we see that these ashes, though useless for wheat, would, alone, produce a fair crop of turnips, we are forced to confess that Herr Von Liebig was on the right road—only he missed his way.

A. R. J. F.

say, yielded in 1845, $2\frac{3}{4}$ bushels of wheat, weighing 60 lbs. the bushel, as will be seen in table II.

(1) M. P. for Berkshire, and President of the R. A. Soc of England.

TABLE II.

HARVEST 1845. SELECTED RESULTS.

| DESCRIPTION AND QUANTITIES OF MANURES PER ACRE. | Dressed corn per acre in bushels and pecks. | | Total grain per acre in lbs. | Straw per acre in lbs. |
|---|---|----------------|------------------------------|------------------------|
| | bush. | pecks. | | |
| Section 1. | | | | |
| Plot 3. No manure..... | 23 | $0\frac{3}{4}$ | 1441 | 2712 |
| " 2. 14 tons farmyard manure .. | 32 | $0\frac{3}{4}$ | 1967 | 3915 |
| Section 2. | | | | |
| " 5a. No manure..... | 22 | $2\frac{1}{4}$ | 1431 | 2684 |
| " 5b. Top-dressed with 252 lbs of carbonate ammonia (dissolved) at 3 times during the spring..... | 26 | $3\frac{3}{4}$ | 1732 | 3599 |
| Section 3. | | | | |
| " 9 { Sul. am. 168 lbs } Top dressed | 33 | $1\frac{1}{2}$ | 2131 | 4058 |
| { Mur. am. 168 " } at 1 time. | | | | |
| " 10 { Sul. am. 168 lbs } Top dressed | 31 | $3\frac{1}{4}$ | 1980 | 4266 |
| { Mur. am. 168 " } at 4 times. | | | | |

tion right as far as I can. I do not question that the manure from the food contains all the fertilizing matters of the food that have not been digested. It is the *valuation* of them that I think excessive, and this excess is a serious injury to all purchasers of the foods and of fertilizers as well. At these times, when farm products are lower than in my memory of nearly half a century, I find that the values of these feeding stuffs are as great or greater than ever; and when a ton of bran is worth more to buy than a ton of wheat, and the refuse of the cotton oil sells for more than the whole cost of the seed (and the same with most of the other valuable feeding stuffs), and the manure from a ton of clover is valued more highly than the clover itself, I am inclined to think, and to say to others interested, that something is out of joint about it; and this, I am convinced, is this assumed value of the elements of plant-food in the manure. (1)

I bought malt sprouts for \$4 a ton when I first used this excellent milk-making food, and I paid \$18 a ton for the first ton of cottonseed meal, when it was a new thing, 25 years ago. I have bought bran for \$6 a ton, and at the same time I was paying \$2.50 for a ton of New-York manure. And it was this cheapness of the foods that led me to feed largely. I then paid no more for fertilizers than they are now selling at, and this enormous advance in the cost of foods and the still high price of fertilizers, out of all proportion to the value of the crops, seem to me to prove that excessive value of the residue of the foods, based on the equally excessive valuation of the elements of fertilizers, is a great mistake, and that the work of the stations and the estimates of the agricultural chemists are all too much in favor of the sellers of these things, and against the interests of their clientage, the farmers. I would not insinuate or be thought to mean anything derogatory to them in saying this, for I have full confidence in these gentlemen in every way; and in making this remark I simply mean that they have taken an excessive standard, by which most assuredly the sellers of these things are encouraged to charge a price that I think—with many others—far too high, as compared with products of them.

Hence those remarks to which Prof. Collier takes exception. And as it seems this accidental quotation from the article referred to has opened a discussion on these points, I should be very glad if the many intelligent contributors to these pages will discuss the matter from their point of view as stated in the above lines. There is no question of its importance, and I think no doubt of the propriety of my view of the case.

H. STEWART.

The Poultry-Yard.

The different egg and poultry markets—Requirements of the different markets—Our home market—Work for the month of August—Early chickens wanted.

(A. G. GILBERT.)

If the demand for eggs for hatching purposes, during the past season, from the Experimental Farm and breeders all over the country may be taken as

(1) We agree completely with Mr. Stewart in this.—Ed.

an earnest, there is a very great increase in the interest in poultry matters. Certainly the demand for information on matters relating to poultry management has been much greater than in any year in my experience. I have received several letters—one of which I send you—(1) speaking of the good work done in this direction by your *Journal of Agriculture*. It has long been my contention that if we could only get the farmers aroused to the value of the comparatively neglected hen to them, as a revenue producer, that good to them and the country, at large, would surely follow. There can be no fear of a want of good markets for as we have already pointed out these are open to our farmers:

1. Our winter home market.
2. Our summer home market for eggs newly laid and of superior flavour.
3. The English market worth from sixteen to eighteen millions of dollars annually.
4. The U. S. market, but we say little of it at present as there is yet a duty of 3 cents per dozen on eggs, going into that country. Notwithstanding, a large number of eggs are exported to that country.

REQUIREMENTS OF THE DIFFERENT MARKETS.

It may be as well to note the requirements of the different markets as follows:—

For the BRITISH MARKET large eggs, weighing six to a pound, if possible, and not less than seven to a pound are wanted. They must be carefully packed and arrive with a clean appearance and with a good flavour. For such eggs there is an unlimited market.

In my bulletin on "Poultry and Eggs" issued last year the following is said in relation to the shipping of eggs to the British market:—"As to careful packing the shipper can attend to that but it is only the farmer who can obtain the large eggs with the good flavour. The large eggs may be had by the farmers keeping and breeding the fowls which lay them and the superior flavour can be secured by care in feeding." And it may be added by making it imperative to have the eggs non-fertilised. The latter subject has been gone into at some length in my two preceding letters.

THE U. S. MARKET.

While attending the annual meeting of the Ontario Poultry Association in January last the statement was made by a Toronto poultry breeder that notwithstanding the 3 cents per dozen duty he had made arrangements with a first class hotel in New-York to send the proprietors selected new laid eggs during the fall and winter at fifteen cents per dozen over the Toronto market price whatever that might be and at that time I think it was thirty or thirty-five cents per dozen. And the circulars of Messrs. W. H. Reed & Son, Boston, call for large brown eggs for which three cents per dozen more than for white eggs will be paid. So that to obtain a tip-top price on this market large and carefully selected eggs are necessary.

OUR HOME MARKETS.

But we have a good market at our own doors that we should first cater for before we seek outside markets. I mean the markets of our large cities in winter. When I was attending a farmers meeting in Montreal last January I was told that new-laid eggs had sold that week at sixty cents per dozen. That meant that such eggs at

(1) But which we never received.—Ed.

that price were a luxury, that only the rich could purchase. There is a good margin of profit for our farmers in eggs at half that price and it is to be hoped that ere long our farmers in the neighborhood of such a market will awaken to their opportunities. In all parts of Canada such high prices do not prevail it is true, but it is more particularly for the farmers of the Province of Quebec that I am writing and they have certainly in Montreal and Quebec good markets for new laid eggs of a superior quality in winter and summer.

OUTSIDE MARKETS

It is to be hoped that when our farmers awaken to the necessity of getting a large non fertilized egg for shipment to the English market in summer, that we shall be able to bring some of those twenty two millions of dollars at present spent in European countries, into the pockets of our farmers. And it can be done by intelligent effort and management.

DRESSED POULTRY

We should also put a better quality of dressed poultry on our markets. I have shown how by keeping the proper breeds viz: white Plymouth Rocks; Wyandottes, Houdans or other rapidly flesh forming breeds that our farmers ought to put cockerels on the market, weighing four pounds each or eight pounds per pair in 4 months. It can be easily done if only tried.

WORK FOR THE MONTH OF AUGUST.

The aim of the farmer, who takes an interest in his poultry, should be to get his laying stock over their moult as soon as possible, for the sooner they have their new feathers the sooner will they begin to lay. He can do much to bring on this desirable condition of his layers by allowing them free run and generous feeding. It is taken for granted that the male bird is kept separated from the hens. As the young cockerels attain the requisite weight they should be marketed and the pullets kept to replace mature hens and make good winter layers. The three year old hens should be fattened killed and eaten at home or sold. This should be done before the hens begin to moult. It has been before remarked that there is no money to the farmer in a hen over 2½ years, if an Asiatic, or 3 years if of the Spanish family, because she will moult so late that she will eat, before she begins to lay, a great deal of the profit she will afterwards make.

The early hatched chickens—and it should be the aim of the farmers to have early chickens—have attained a goodly size by this time. The cockerels ought certainly to weigh 3 lbs to 3½ lbs. At any rate they should weigh four pounds each by end of the month (August). And I am not too exacting when I mention these figures.

GOOD PRICES FOR EARLY CHICKS.

Good prices will be obtained for early chickens and ducks. Enquiry in the cities will elicit that fact. It only requires energy and intelligent management, on the part of the farmers, to make money out of their poultry and they need not at present go to a foreign market in order to do so.

Ottawa 13 July 1895.

EARLY CHICKS.

Are the order of the day and the thought uppermost these days. How are you hatching them? After nature's old method? Or shall the wee, coming prize winners come forth after the fashion much in vogue at present—that of artificial incubation? Any way to get hatched early, and well on their way to the show room whether hatched by steam, hot air or the somewhat

unreliable mother hen. Then, when hatched—how shall you feed them? Did you give millet seed a fair, square trial last year, as food for baby chicks? We did, and were much pleased with results and shall feed oceans (or less) of it this season also. In fact we are feeding it now to our incubator, winter-hatched chicks out in the brooder—chickens that will be about ready for the Lincoln market when this letter appears in the poultry news.

BROODERS AND INCUBATORS.

Of course I think I own the ones par excellence. At least one could not ask for better. My trial hatch was a most excellent one, all things taken into consideration. We bought the eggs from the farmers, and bought them in cold weather and consequently were not at all surprised when, on the seventh or eighth day we "tested out" six dozen infertile eggs from the 180 placed in our 200 egg incubator. We also marked a great many others "doubtful" and giving them the benefit of the doubt replaced them. When it came to hatching time we found them decidedly doubtful. However some of them were retested about the twelfth day and cast out, while still others that looked a little "queer" were left to see what they would do. But they did nothing in particular, except to omit a somewhat undesirable odoriferous perfume when broken, and to show that chickens had died very soon after showing the first faint signs of life. Those were undoubtedly chilled eggs. But about that incubator there was not the least odour from first to last and the machine stood in our "parlor" throughout the hatch. It will stand there throughout the next one or two hatches.

Poultry men may cry down ventilation and shut in all the foul air for their fowls to breathe over and over again if they choose, but what is necessary to man is also necessary to the perfect health of the beasts of the field and the birds of the air—or, to your biddies and mine. I could not live without fresh air, nor shall I compel my poultry to. Neither shall I freeze them out or expose them to draughts. But never shall I own a poultry house again without putting in just such a ventilator as our present main poultry house contains.

Many experienced breeders of the thoroughbreds hesitate about buying eggs because of fear of breakage and a general shaking up of egg in transportation. To be sure accidents sometimes happen because of carelessness in handling the baskets of eggs by the express company's servants. But we are very thankful that eggs will withstand long journeys and almost everything but actual breakage and still give good hatches. Eggs shipped so far as California and Washington last season gave splendid hatches. Were I wanting to buy eggs for hatching I should never hesitate about sending for them, but just "trust to luck," for the thoroughbreds I'd have, at whatever cost. Eggs carefully packed in baskets, wrapt in cotton and literally buried in *excelsior*, well covered and protected and plainly labeled, stand a very good chance of reaching their destination in good shape.—NELLIE HAWKS, in Western Poultry News.

DUCK FARMING.

BY JOHN J. LENTON.

Large establishments for keeping hens are not numerous, but there are a great many large "duck farms."

Long Island takes the lead, but there is one duck farm at South Easton, Mass., owned by James Rankin, on which as many as 10,000 ducklings have been raised and marketed in a single season.

What interests the reader of this, however, is to know why duck farms are numerous and profitable, while large "hen farms" are rare. That the hen can be kept a year with less labor than a duck requires, and consumes less food, is well known; but the duck has an advantage over the hen which places her far in the lead, and that is the rapid growth of the ducklings.

While a chick is slowly reaching a marketable age and weight, the ducklings are up and in market long before. In three months from the time the eggs are put in an incubator (for incubators are used on all large poultry farms) the ducklings are ready for market, and that, too, in the face of the fact that four weeks of the thirteen are required for incubation. This leaves only nine weeks for growth, but in that period the ducklings may reach four or five pounds weight, while the chick, with the advantage of only three weeks for incubation and with ten weeks of the three months for growth, will do well if it reaches a pound and a half. Hence a duckling will make more than three times as much meat up to the age of ten weeks as a chick.

The cost is the same per pound of meat produced in each case. It requires, on an average, about five cents worth of food to produce one pound of poultry (and that rule seems to hold for all classes and all ages), but it pays to produce the meat in the shortest time. Now, if five pounds of duckling can be produced in the same time required for a pound and a half of chick, it is equivalent to more than three crops of chicks, and though the duckling eats more food, it grows more rapidly, and the cost per pound of meat is the same.

Another advantage is, that the duck lays her eggs in the winter, or at a time when eggs for incubation are mostly in demand, and she will lay an egg every day if she is a choice duck and from a good laying strain, while the hen does not begin until later and is more uncertain. The eggs of the duck are also more fertile, and better hatches are secured. The young duckling has a good appetite from the start, is not very fastidious, and is subject to but few drawbacks; cholera, roup, and lice have no terrors for it. Give the young duckling half the care and warmth allowed the chick and it will be happy and grow fast.

The duckling thrives on a coarse, bulky diet. A mess of turnips, cooked and thickened with bran and meal, will be a delicacy, and all kinds of nutritious weeds, such as purslain, plantain, rag-weed and pig-weed, will be accepted readily. Ducklings can be removed from the brooders much sooner than chicks, and as soon as partially feathered they will thrive under a shed or any dry shelter, while the old ducks will snugly tuck themselves away for a good night's rest outside, with a north-east storm pouring down on them. This is something, however, we advise should not be permitted, as they give the best results with care.

A duck will lay as many eggs in a year as a hen, but she performs that work quickly and then takes a long vacation, while the hen will be dropping an egg occasionally throughout the year. For keeping the family in a supply long after the duck ceases, the hen becomes a favorite, though she really does not produce a greater number, if as many, in a year, nor does she

produce as large eggs as the duck. (1) But, as the duck has paid for herself in advance, she receives no thanks, and is considered a very unprofitable creature, while the hen receives all the credit and praise. If the duck would extend the laying period, she would give the hen a hard struggle for first place.

But all ducks do not weigh five pounds when ten weeks old. The ducks that are expected to give such returns are of the "blue blood" families. The favorite breed on the larger duck farms is the Pekin, which cannot fly over a fence two feet high, and thrives on dry land. On many of these farms there is no water except for drinking purposes, given in troughs, and the ducks seem to do as well as those that have access to a pond or other water privileges. The Pekins, though they thrive best when foraging for their food, are often kept in small yards. All the time and labor of raising the ducklings (spring ducks, but sometimes known as "green ducks") (2) is from February to June. (3) After that time there is but little demand, and only a few adults are kept for next year's laying.

TURNING PIGS INTO GOLD,

BY

SANDERS SPENCER.

There are few things which are considered so well within the ability of anyone as in the tending and feeding of pigs. On many farms it is still the practice to tell off the least competent of the labourers to look after the pigs, whereas it is held by many persons of experience that few animals pay better for attention than do litters of young pigs. There is frequently a difference of 3s. or 4s. per head on a litter of weanlings which have been properly attended to and those from a trip which have not been exactly neglected, but had to squeal for their suppers.

The first essential in pig keeping is that the attendant should have a knowledge of his duties and a desire to perform them. No great amount of book-knowledge is required, but the man should have a fondness for animals and possess a fairly equable temper, especially where boars are kept; firmness and kindness must be freely employed or the stock boar is sure to give trouble. These animals should be treated so that they have no opportunity to discover their strength. A man is perfectly powerless with a boar determined to have its own way when in the open. A considerable number of boars are rendered bad tempered by being treated as though they were so, the attendant invariably using a stick or fork shaft to keep away the boar whilst he places food in the trough, and the tines of the fork are not infrequently used to prod the boar with when the place is being cleaned out. Whilst it is true that care is not taken never to breed from a bad tempered boar, a good many boars which have the credit for being savage have had their bad qualities developed by want of care and sense on the part of the person who feeds and attends them.

These remarks will show that it is

(1) But the duck's egg, though we ourselves rather like it, is not a favourite with most people.—Ed.

(2) We speak in England of green geese, but always of ducklings.—Ed.

(3) Ducks are good up to the end of September, but from August 20th should be stuffed with sage and onions.—Ed.

very desirable to purchase a boar from a herd in which attention, has been paid to breeding from good tempered animals, since this quality is desirable in the sow as it is frequently necessary to enter the sty where she is farrowing. In cold weather, many young pigs are saved by this attention, which it is impossible to render if the sow is bad tempered, as if no actual harm is done to the attendant the litter is frequently so upset that the pigs get trodden on, the flow of milk is interfered with, and the warmth and comfort which the newly born pigs require are denied them. They soon begin to show the result of the cold striking them by becoming lothario, or they worry the sow by their continual shrieking which soon ends in death. It is always advisable, if it be possible, for a would-be purchaser of breeding pigs to go and see what he buys—see the parents and the general stock of pigs on the place. Too many persons imagine, that all that is necessary is to write to some one who has won a few prizes and order of them the pigs required. No greater mistake is made. Nothing is easier if a person has money than to win prizes, unless it be to insert a glowing advertisement in a paper. If the advertiser has sold a pig or two to some nobleman's bailiff, so much the better, as these pigs can be described as "marvellous" even if they have proved the veriest brutes in the breeding and show pen. Our advice is never to buy a pig in a poke, unless from a breeder who has for years had a reputation which is worth the keeping. Another point is that it is not always the best pig which costs the most money, but nothing is gained by attempting to beat down the price asked for a good animal; by so doing you get a pig of less value, as a breeder having good animals and a good reputation seldom reduces his price to secure customers.

In purchasing breeding pigs it is necessary to consider the market in which the produce will have to be sold. If the object is to breed pigs to sell off the sow, one cannot well have the parents too big and growthy, providing that they are not awkward in their movements or so long in the back as to render them likely to become weak and to lie on the little pigs. The longest pig is liable to be coarse in bone, bent in the legs, and weak and round in the ankles; avoid such; it is bound to be a helpless brute and to soon require the butcher's knife to cure its complaints. A sow of this description is frequently a bad mother; she will produce small litters, rearing only a part of them, and these will be almost certain to inherit the weaknesses of their parents. As with horses so with pigs, there are good pigs of all colours. There is, however, in some districts a considerable prejudice in favour of the pig of the colour to which the residents are most accustomed. It is found at times that new introductions are not altogether a success, but this may, and does, most frequently arise from the fact that the specimens brought in are not the best of their breed. They may have been bought of some who have purchased pigs and with them won prizes, but this fact does not ensure either the quality of the pigs or their suitability to the new district. So many pigs are now-a-days bred only to win prizes that the show and not the utility points are the first consideration with many persons. That it is easy to combine these two qualities has been proved. No stronger proof of this need be furnished than that successful show herds have been drawn upon year after year by purchasers from

well nigh every country where pig breeding is carried on successfully, this proving that it is more the breeding than the breed of pigs bought.

In selecting the boar or sow much the same points must be sought. The boar should, of course, have masculine character which will be noticeable in the greater development of parts, such as the neck, &c., but each should have a wide forehead and a bright intelligent eye; the neck should be muscular, but not fat; the shoulders well laid and narrow on top (the neck and shoulders are worth only half as much for the bacon curer's purpose as the ribs); the chest wide; the forelegs should be outside the body and the ribs well sprung, so that the important organs of the body—the lungs and heart—will have plenty of room to work; the ribs should be deep, without that tightness round the girth; the flank thick, this being a sure indication of lean meat, particularly in the belly part; the hind quarters long and wide from the hips to the tail, the hams wide and well let down, or as some persons describe it the hind legs should not be split up and the second thigh deficient; the bones solid or flinty, not porous, the latter indicating softness of flesh and too great a proportion of fat; a thin papery skin is associated with want of quality in the meat; a good coat of soft hair is necessary, constitution of and firmness of flesh are generally then also present; the hair should be straight, as curly hair frequently accompanies coarseness of flesh, as it does too great a proportion of fat.

One of the most important points in the breeding pig is its ability to get and rear large litters of healthy pigs. There is no quality more hereditary than this, as it is a sure indication that there is stamina, and that utility has been studied by the breeder. It is by no means unusual to find sows which farrow large litters, but the pigs are uneven and the sows bad milkers and sucklers. These are two of the worst failings in a brood sow. In purchasing a young sow select one with a fair quantity of teats, evenly placed and neither coarse nor ill shaped. A sow with a coarse udder may look like a heavy milker, but this does not follow; it is more frequently an indication of coarseness. Some of the best brood sows are those whose udders make the least show; when the sow is not suckling the udder appears to waste away, and except from the slightly increased size and length of teat some persons would imagine that she had not reared any pigs. It must not be forgotten that, with pigs especially, the bad qualities of the parents are as hereditary as the good ones, and are more likely to be observed in pigs which have not for a time been bred for certain good qualities. In fact, in the breeding of pigs, too much has been done to chance or to the production in pedigree herds of those fancy points which are worse than useless. This may be considered rather strong language, but it is used advisedly and with a firm conviction that it is warranted.

Various opinions are held as to the best time at which to begin to mate breeding pigs. We believe in early maturity, and this shows itself in the ability of certain strains to reproduce their species early in life; a well-kept boar or gilt should be fit to be mated when eight months, so that the first litter arrives when the dam is about a year old. It is a good plan, if the litter is large and the sow a heavy milker, to allow the pigs to remain on her until they are ten weeks old, feeding the sow well the whole time, or, if it

be more convenient to wean the pigs, to allow the first period to pass; this will usually be observable three or four days after weaning. It is a good plan to wean gradually by allowing the sow to stay away from her pigs a longer time each day. The milk will gradually become less, and the pigs will not miss the sow at all when finally weaned. Some persons advise the taking away one or two of the pigs at a time, but this is troublesome and sometimes leads to injury of the sow's udder, as the milk in those teats not sucked is liable to cause garget. (1) If the pigs are being gradually weaned the sow will sometimes receive the boar whilst the pigs are still sucking her, she may be mated, and, if successfully, the milk will speedily dry up. Some sows evince a desire for the boar when the pigs are not more than three or four weeks old, but it is not then advisable to have her mated, as should she become in pig, the little pigs will suffer from a restriction and early cessation of the flow of milk, besides this nothing is gained from working the sow so hard,—the pigs come weakly and the sow will soon be worn out. For suckling sows during the first five or six weeks nothing is better than sharps and broad bran, in the proportion of about five to one. It is the practice with some breeders to give the sows, after farrowing, a good deal of physic, stout treacle, &c. If the sow be properly fed the less of these nostrums the better; nature has ordered that the sow is so constituted that the arrival of the family is attended with little risk.

As soon as the pigs have arrived it is desirable to give the sow about a gallon of thin slop, in which is mixed one ounce of sulphur, and one sixth of an ounce of nitre. In cold weather this should be given warm, and if the sow appears exhausted or weakened, a little milk stirred in the slop will often tempt her appetite. The sow should be walked about when she has farrowed twelve hours, and kept gently moving until she has relieved both the bowels and the bladder, this natural motion is far better than if the result of medicine. Sometimes the teeth of the newly-dropped pigs are abnormally long; this is generally the case when the pigs are carried over the usual period of sixteen weeks, it is then advisable to break off the teeth with pincers; if the sow is excited by the squealing of the little pigs, place them in a hamper and carry them out of hearing. One person can easily break off the teeth. The pig is tucked under the left arm, its mouth opened with the left hand, and the teeth broken off with pincers held in the right. There will then be no danger of the sow's teats being bitten nor of the little pigs biting each other in the fight for their own particular teat. When the pigs are three or four weeks old the sow may be let away from them for an hour or so in the middle of the day, a little skim milk placed in a trough, and a handful of whole wheat sprinkled on the floor of the sty to entice the little ones to eat and thus reduce the drain on the sow. When the pigs commence to feed they usually suffer from an attack of diarrhoea; as soon as the droppings are dry and like blackened peas a gentle dose of opening medicine given to the sow will ward off or moderate the attack; a shovelfull of mould occasionally thrown into the sty is a good thing, cinders, small coal, and wood ashes are also readily eaten by the young pigs and prove of benefit. One

of the best foods for the latter is skim milk given fresh and sweet. If this can be purchased at 2d. per gallon no cheaper food can be obtained, (1) the other food mixed with it is more readily eaten and better digested. One of the great secrets in feeding is to feed little and often, and, when the weather is cold, the food should be made slightly warm. The pigs not intended for breeders should be operated upon when five or six weeks old, being fed lightly the night before the operation.

The old-fashioned plan of keeping pigs for nine months in a growing state, or as stores, is gradually becoming less general, like all popular errors, it dies hard. It cannot require much thought to be convinced of the fact that a certain proportion of the food eaten each day is used up in keeping the machinery going, or as fuel to supply heat, &c. It therefore follows that at least twice the amount of food is required for this purpose if the pig is so fed that it takes twelve months to arrive at the same weight as might be attained in six months had the food supplied been either more in quantity or better in quality. The question may be asked, can a pig be as cheaply kept on food which keeps it in a progressive state as on inferior food? We should say certainly, even more cheaply, for the simple reason that if the pig's digestive organs have to extract the small quantity of nourishment from inferior food, they must waste a considerable amount of energy, as so much more useless matter has to be dealt with to obtain a sufficiency of nutrition. Besides this, if a pig be well and liberally fed it soon makes room for another, so that two pigs can be fattened and two profits made where only one was before obtainable. Another thing—and this is a most important matter to the pig keeper who has an allotment or large garden—the manure made contains at least twice as much goodness, whilst the expense of everything except food, is no greater in fattening two sets of pigs in twelve months than in only turning out one in the same period. The straw and attention required is the same, whilst the money is turned over twice, and the profits from the same capital are twice as large. We would strongly urge that young pigs should never be allowed to become poor or to be kept as store pigs. In every way it is more profitable to add good food to the garden stuff, or the house swill which is fed to the pig, so that by the time it is seven or eight months old it is ready for the butcher. Experiments have been made which clearly prove that a pig of 100 pounds weight requires less food to make one pound weight increase than one weighing 300 pounds, and that the amount needed increases in proportion to the extra weight of the pig; whilst the ten or twelve stone pig is more ready of sale, and at a higher price per stone than a 15 stone pig. In most districts a young fat pig of some 150 pounds weight appears to be more readily saleable than an older pig weighing considerably more. In years gone by the fashion was for large joints of fat meat; now small joints are more generally in demand.

The manner of feeding pigs has also altered of late year. We can remember when almost everyone fattened their pigs on barley meal; a few farmers who had grown peas and beans would sometimes use the latter, and generally the former, but the pork was usually hard and not as saleable. Then we had the maize period, the enormous quantities of Indian corn appeared to be so cheap

that pig feeders used it so largely as to injure the quality of the pork, which was soft, yellow, and oily. At the present time pig-keepers have a great choice of foods at a lower price than ever known—barley meal at 7d., wheat meal at 8d., peas and beans at 7d., rice meal at 6d., and sharps and bran at 6d. and 5d. per stone respectively. Surely pork can be made at a profit even if it realises only 5s. to 6s. per stone.

We are strongly in favour of a mixed meal; wheat, barley, and rice meal, in the proportion of 3, 2, and 1, is, perhaps, the most economical and best. At the present time 5 to 6 lbs. of this mixture should make 1 lb. of pork, and as this weight of meal should not cost more than 3d., a profit must result if the produce is sold for 4½d., leaving the manure to pay for attendance. (1)

There may be many points missed on which information is sought. A book entirely on pigs would scarcely suffice to discuss every point, but we would impress on our readers that the best and most expensive of styes, foods, &c. are as nothing compared to attention; boiling up the little potatoes and giving the food warm to the pigs in cold weather; the frequent and regular feeding on just as much food as the pig will clear up; and the few leaves, bracken, or straw to make it a dry bed on which to rest and grow fat may be simple matters, but they often determine the question of loss or profit in connection with pig keeping.

THE BREEDING AND MANAGEMENT OF SWINE.

BY J. O. SNELL.

(Continued)

There are a few principal points to be considered in breeding hogs which apply, in a general way, to all classes of stock. One of these—and perhaps the most important—is to secure a strong constitution; without this the best results cannot be attained in breeding or in feeding. This means a wide chest and a large girth, giving room for the vital parts—the heart and lungs—to have free and easy play. This calls for a good spring of ribs and good depth of fore-ribs, good depth of body, giving capacity for working up food; and these give a guarantee of health, of the ability to resist disease, and to overcome disease when attacked.

The inexperienced breeder is apt to attach undue importance to fancy points and non-essentials, such as color, markings, and a pretty face, and to neglect the weightier matters of constitution, symmetry, and feeding qualities. A good head on a hog is desirable, and the head is often an index to the general character of the animal; but when we speak of a good head for a hog, we do not want that of a pug dog. A very short head and heavy jaw generally go with a small class of hogs, with the tendency to produce an excess of fat meat and a minimum of lean meat. Such a hog is apt to go wrong in his breathing apparatus, to become wheezy and is generally short lived and unprofitable. A long, narrow face, on the other hand, indicates a hard, slow feeder, a restless, discontented disposition, and an unprofitable animal for the farmer to keep. The best type of head is a happy medium—not too long and not

(1) But we have made such capital pork and bacon on barley-meal and skim-milk, with a finish of 3 weeks on peas.—Ed.

too short—a free, open countenance with an intelligent expression, and wide between the eyes and ears. A strong back and loin is always in order, and hams are worth more than heads, so that more attention should be given to the improvement and development of the more valuable parts.

The condition and quality of bone, of feet and legs, in hogs has had too little attention in this country, both in breeding and management. The appearance and usefulness of an otherwise faultless hog are often spoiled by a bad set of legs and feet. It used to be thought that a horse was the only animal on the farm whose feet and legs needed special attention; but the careful breeder of hogs knows that weakness in these points is often an indication of weakness of constitution, and is a serious objection.

Strong but not coarse bone should be sought after, with straight legs and standing straight up on the toes—points that must have weight in the selection of the ideal hog for breeding purposes. This, of course, also depends largely upon the treatment. Confinement upon plank floors is too common in this country, and only exercise upon the ground will keep the feet and legs in the best condition.

With regard to the management of pigs, I would say it depends much upon what the object is. If it be to produce the greatest weight in the shortest time and at the least cost, to secure early maturity, and to market at six to eight months old, it will be necessary to push the pigs from the day of their birth, giving due attention to necessary exercise, and avoiding over crowding with too rich food, especially in the first few weeks of their life.

If the pigs are to be kept for breeding purposes they will require different treatment. They should have abundant exercise, a chance to run upon a field of grass, or, at least, a large yard, where they can develop muscle and a strong constitution.

Breeding-sows while in pig should not be confined in close quarters, but should be made to take exercise. A host of young pigs are lost in this country every spring—and it is a heavy financial loss to the farmers—from this cause. The sows are, as a rule, too well fed, and lie in their beds too much; the pigs come weak and flabby, and thousands of them—whole litters, in many cases—are born too weak to reach their mother's milk, and come into the world only to gasp and die.

It is a worthy ambition to have a complete piggery—roomy and warm and comfortable, and a breeder of pedigreed stock can hardly do without it; but I am fully persuaded that for the best results in breeding, the fancy piggery should be used mainly for a show room, and that the pigs should not be kept in it long unless provision is made for their getting out upon the ground frequently, if possible at their own will. For breeding-sows and growing pigs nothing is better than an open pen, or a pen with an open door, and the privilege of running in the barnyard or a large yard or small field.

I think that, as a rule, in this country sows are put to breeding at too young an age, which tends to check their growth, and if continued from generation to generation, tends to degeneration in size, and in strength of constitution. For the best results I think a sow should not have her first litter before she is sixteen or eighteen months old, certainly not before she is a year old.

(1) Very sensible; but it never struck us before.—Ed.

(1) 40 cts. per 100 lbs. 1

Fortunately in this country we have very little trouble from disease in our hogs, and with judicious management we are practically free from disease, which is a strong point in our favor in this line of our business. Attention to cleanliness, to dry sleeping-quarters, and abundant exercise and fresh air, are the requisites to success, and these things are not expensive or difficult to secure.

Farmer's Advocate.

FARMERS' CENTRAL SYNDICATE OF CANADA.

30 St. James St., Montreal.

Honorary President: His Grace, Archbishop C. E. Fabre, Bishop of Montreal.

President: Hon. J. J. Ross, President of the Senate, Ottawa.

Manager: W. A. Wayland.

The Farmers' Central Syndicate is in a position to supply the farmers with all that is required for their farms: machinery of all kinds, ensilage cutters, mowers, reapers, rakes, dairy supplies, cheese factory outfits, flax breakers and scotchers, binder twine, bearded wire, thoroughbred animals of all descriptions, fertilizers, &c., &c. All the above mentioned goods are first quality, and highly recommended by the most competent men. The prices are exceedingly low, as can be proved to all those making inquiries at our office or by mail; the purchaser is always sure to gain from 20 to 40% in buying through our intermediate; the annual subscription is thereby soon refunded.

We call the special attention of those who intend using fertilizers to the fact that we have obtained lately large discounts from the Nichols Chemical Co., of Capleton, thus enabling us to quote low figures. Write for information before purchasing elsewhere; it will pay you.

STATE OF THE CROPS.

PASTURES.—The pastures have been good during May and the most part of June, in many places the white clover is very abundant. For July, cows are shrinking very fast, with short pastures, and not much green feed, and the flies make it hard on the poor things. I believe we are much better off than the United States and the western section of Ontario.

HAY.—Upon the whole, the hay crop is good, with perhaps the exception of Huntingdon County. New meadows as a general rule are excellent, clover good quality, and more of it sown than formerly. Some places, notably Chateauguy and parts of St-Hyacinthe counties, have an abundance of that pest "sweet clover"; cattle have to be almost starving before they will eat it, wild mustard seems to be a good crop in many sections. When will farmers study their own interests better than have their land polluted with such trash as, sweet clover, wild mustard, thistles and couch-grass? They should know that these wild weeds which are worthless as feed take the fertility out of the soil as much as good hay or grain.

WHEAT.—Very little sown this season but it looks well, so far.

OATS.—Are looking well; in many places they will not be able to stand up the growth of straw is so abundant.

BARLEY.—Excellent. Fields of barley will be ready to cut, before haying will be finished.

PEAS.—Are better than last year, although in some localities they were hurt with the wet early in the season.

RYE.—Very little sown, but a fair crop.

BUCKWHEAT.—It is rather early to speak of this crop now, it has a good appearance.

CORN.—Corn is doing well. In some sections there is not much grown but through Huntingdon and Chateauguy there seems to be more than the usual quality planted, it not often that corn looks as well at this season of the year, as just now.

POTATOES.—Doing well, the bugs have been rather severe on them this year, no sign of rust yet; new potatoes nearly quite are on the market already.—July 6th.

ROOTS.—Roots of all kinds are doing well; fully more grown this year.

APPLES.—Not so plentiful as last year but of better quality, no spots visible so far—quite a number sprayed their trees with the Bordeaux mixture, to prevent the spots or scab, while those who did not seem to be as free from it as those who sprayed: but it may affect them later.

Small fruits, are abundant this season and of good quality.

Haying is a week or ten days earlier than last year, but too many are afraid to begin too early, they prefer ripe hay before grass to feed during the winter. No doubt it lasts longer, but the question is, is it more profitable? (No question about it! Ed.)

BUTTER AND CHEESE.—There is more made this year than last, and yet last year was a record breaker. The shipments of butter are something over 2,000 packages more than last year while the cheese are over 60,000 less, but there must be more cheese in cold storage than last year, with the prices of butter and cheese both low, and hay selling so well, some may sell their cows and hay, farmers as a rule are very changeable (Very Ed.) and easily discouraged. I would advise them to feed their cows well and stick to them.

The Dairy Association of this Province in connection with the Provincial Exhibition Co. intend to offer prizes to the best Syndicates and Inspectors, also for best papers on Cheddar cheese-making, butter-making, feeding pigs and cattle. The prizes are worth trying for and it is hoped there will be some good papers. The whole prospectus will perhaps be in this issue of the Journal.

PETER MACFARLANE.

Chateauguy,
10th July 1895.

FARMERS' SYNDICATE OF THE PROVINCE OF QUEBEC,

Office: 23 St. Louis Street,
Quebec.

President: His Grace Mgr. E. N. Begin.

General Secretary: Ferd. Audet, N.P.

Treasurer: P. G. Lafrance, Cashier of the National Bank.

Send at once your orders for grain seeds, artificial manures, phosphate, agricultural implements, &c.

The Farmers' Syndicate buy for its members live stock for breeding purposes of all kinds: horses, cattle, sheep, pigs, fowl.

SPECIAL PRIZES RECOMMENDED

BY

The Department of Agriculture for the Provincial Exhibition of 1895.

DAIRY DEPARTMENT CLASS.

Special competition open to Syndicates of Butter and Cheese Factories.

CHEESE FACTORIES.

1st Open to Syndicates under an Inspector of one year's experience and over as Inspector, each factory exhibiting one ordinary export cheese made between the 1st. and 15th. August 1895, white or colored:

| | | | |
|----------------------|----------|----------|---------|
| | 1st. | 2nd. | 3rd. |
| For the Inspector... | \$40.00 | \$30.00 | \$20.00 |
| For the Syndicate... | 100.00 | 75.00 | 50.00 |
| | \$140.00 | \$105.00 | \$70.00 |

2nd. Open to Syndicates under a new Inspector (first year's experience) each factory exhibiting one ordinary export cheese made between the 1st. and 15th. August 1895, white or colored:

| | | | |
|----------------------|----------|---------|---------|
| | 1st. | 2nd. | 3rd. |
| For the Inspector... | \$30.00 | \$20.00 | \$10.00 |
| For the Syndicate... | 75.00 | 50.00 | 25.00 |
| | \$105.00 | \$70.00 | \$35.00 |

3rd. Open to Syndicates of Butter Factories, each factory to exhibit a tub, barrel or box of butter made between 1st. and 10th. September.

| | | | |
|----------------------|----------|----------|---------|
| | 1st. | 2nd. | 3rd. |
| For the Inspector... | \$40.00 | \$30.00 | \$20.00 |
| For the Syndicate... | 100.00 | 75.00 | 50.00 |
| | \$140.00 | \$105.00 | \$70.00 |

RULES OF THE COMPETITION.

1st. A Scale of Points will be established for the Judges by the Dairymen's Association, and shall be communicated to the Syndicates in advance.

2nd. Uniformity in the exhibits will be one of the chief points considered in this scale; and this will apply as well to the packing and furnishings as to the quality and nature of the exhibits. The points which fit butter and cheese for export will be the only ones taken into account.

3rd. The judgment in this special competition will be divided into two parts:

1st. The order of merit between the Syndicates will be established by the Judges of the Exhibition.

2nd. The order of merit between the factories of each prize winning Syndicate will be established by the general Inspector of the Dairymen's Association and one of the judges.

4th. The prizes obtained by the Syndicate will be as follows:

| | | | | | |
|--------------------------|---------|---------|---------|--------|--------|
| | 1st. | 2nd. | 3rd. | 4th. | 5th. |
| In Sec. 1, and 3; prizes | \$20.00 | \$16.00 | \$12.00 | \$8.00 | \$4.00 |
| In Sec. 1, and 2; prizes | \$15.00 | \$12.00 | \$9.00 | \$6.00 | \$3.00 |

to be divided between the five factories scoring the highest number of points according to sub-section 3, as above. The remainder of the prizes to go to the general fund of the Syndicate.

5th. To be entitled to claim that part of the prize assigned him, each inspector must, before the first September, address to the Secretary of the Dairymen's Association a short but complete report.

(a) The general advice given by him to the syndicate.

(b) Special advice necessitated by climate and other physical circumstances and the nature of the milk in the region he inspects.

(c) The improvements made, those to be still made and the principal defects existing in his syndicate; further this report shall contain a short note on the general equipment of each of the factories in his syndicate, the plant, the buildings, site and drainage should be qualified by "excellent," "good," "satisfactory," "deficient," or "bad" according to the circumstances of each case. An acknowledgment of the receipt of this report must be transmitted to the Secretary of the Exhibition before the competition.

6th. There is nothing to prevent factories from sending in, with their syndicate exhibit, a second tub of butter or box of cheese to entitle them to compete in the other classes of Dairy Product, but in this case, a separate entry, under the ordinary conditions of the programme, must be made.

7th. The weight must be neatly stencilled on the packages, but the use of any marks whereby the factory might be identified is strictly prohibited. Special tickets will be furnished for the shipment of the products to the Exhibition.

1st. Prizes for the best paper on the making of Cheddar Cheese:

| | | |
|---------|---------|---------|
| 1st. | 2nd. | 3rd. |
| \$30.00 | \$20.00 | \$10.00 |

Each competitor exhibiting one cheese.

2nd. Prizes for the best paper on butter making:

| | | |
|---------|---------|---------|
| 1st. | 2nd. | 3rd. |
| \$30.00 | \$20.00 | \$10.00 |

Each competitor exhibiting one tub of butter.

3rd. Prizes for the best paper on the raising and fattening of sheep:

| | | |
|---------|---------|---------|
| 1st. | 2nd. | 3rd. |
| \$30.00 | \$20.00 | \$10.00 |

Each competitor must exhibit sheep.

4th. Prizes for the best paper on the raising and fattening of swine:

| | | |
|---------|---------|---------|
| 1st. | 2nd. | 3rd. |
| \$30.00 | \$20.00 | \$10.00 |

Each competitor must exhibit pigs in one of the classes of the Exhibition.

5th. Prizes for the best paper on the feeding of milch cows:

| | | |
|---------|---------|---------|
| 1st. | 2nd. | 3rd. |
| \$30.00 | \$20.00 | \$10.00 |

Each competitor must exhibit milch cows.

6th. Prize for the best paper on the cultivation of mangels.

Each competitor must exhibit two bushels of mangels cultivated on his farm.

7th. Prize for the best paper on the cultivation of carrots.

Each competitor must exhibit two bushels of carrots, cultivated on his farm.

8th. Prize for the best paper on the fabrication and preservation of farm yard dung.

Each competitor must exhibit in one of the classes of the Exhibition, some cereals, vegetables or roots.

9th. Prize for the best paper on ploughing and sub soil ploughing.

Each competitor must exhibit in one of the classes of the Exhibition, some cereals, vegetables or roots.

10th. Prize for the best paper on artificial manures and their use.

Each competitor must exhibit in one of the classes of the Exhibition, some cereals, vegetables or roots.

Each paper not to exceed one page of the *Journal of Agriculture*.

These papers and essays must be written by practical farmers, and, on butter and cheese making, by makers, directors or proprietors of cheese and butter factories.

AVERAGE CROPS IN U. K.

We are glad to see this, year for the first time, the averages of the ten estimates, up to and including that of 1894, adopted as a standard of yield, instead of the old "ordinary average." The latter is also given, probably for the last time, for comparison, the result being to show how untrustworthy it was. There are ten estimates for all the crops except the hay crop in its two divisions, for which there are time for Great Britain and eight for Ireland and the United Kingdom. In the following table for the United Kingdom (excepting the small islands) the average given is that of the whole of the estimates for each crop:—

CROPS IN THE UNITED KINGDOM.

| Crops. | Total Produce. | | Yield per acre. | | |
|--------------------------------|----------------|-------------|-----------------|-------|-------|
| | 1894. | 1893. | 1894. | 1893. | Aver. |
| | Bushels. | Bushels. | Bush. | Bush. | Bush. |
| Wheat..... | 60,704,382 | 50,912,847 | 30.70 | 26.08 | 29.32 |
| Barley..... | 78,600,635 | 65,745,992 | 34.77 | 29.30 | 33.38 |
| Oats..... | 190,862,714 | 168,588,121 | 42.34 | 38.14 | 39.03 |
| Beans..... | 7,197,709 | 4,863,046 | 29.17 | 19.61 | 26.15 |
| Peas..... | 6,229,097 | 4,756,447 | 25.64 | 22.61 | 25.20 |
| | Tons. | Tons. | Tons. | Tons. | Tons. |
| Potatoes..... | 4,662,147 | 6,540,593 | 3.32 | 5.23 | 4.48 |
| Turnips..... | 30,677,732 | 31,110,313 | 13.53 | 13.66 | 13.09 |
| Mangels..... | 7,309,823 | 5,225,457 | 18.02 | 13.26 | 17.06 |
| | Cwt. | Cwt. | Cwt. | Cwt. | Cwt. |
| Hops..... | 636,846 | 414,329 | 10.70 | 7.21 | 7.71 |
| Hay from clov. &c. | 98,840,452 | 63,333,140 | 35.77 | 23.55 | 31.17 |
| Hay from permanent pasture.... | 215,147,265 | 118,308,622 | 33.65 | 20.41 | 28.23 |

The great superiority of the harvest of 1894 to that of 1893, as far as bulk of produce was concerned, is strikingly shown by these figures. For the United Kingdom every crop, except potatoes and turnips, yielded much better last season than in the preceding year of drought, and the case of turnips was not an exception in England alone.

For the National Stockman and Farmer.

SHALLOW CULTIVATION.

When one examines the reports of our stations regarding experiments with shallow and deep tillage he finds seeming conflict in the results. This is equally true of the reports made by farm writers. But the weight of the testimony is in favor of shallow culture of all, or nearly all, crops. The variation in results is due to character of soil, the particular season in which the experiments are made, and sometimes the tillage itself, some going to the extreme of barely scratching the soil and failing to stir all its surface. As we do not know all the circumstances many get the impression that it is all chance any way, and that shallow culture is a fad and has no particular value.

The longer I study and practice shallow and level culture, the surer I am that it is best for my own soil, but in a different soil I think I can see that it might give poor results. Very few

hard and fast rules can be laid down for our guidance in agriculture. There must be variation to suit varying conditions. Tillage is no exception. In the case of potatoes especially it has been insisted that the roots of plants must not be disturbed, and that the surface of the soil must be kept level for best results, but there are cases in which deep tillage may be best, and also where ridge culture is best.

Shallow cultivation does not necessarily consist in merely scratching the surface of the soil. In fact it should consist of more than that. In using the sweeps of a Planet Jr. cultivator I have noticed that when they are set to run very shallow there is not always enough loose earth to protect the moisture in the soil beneath. Then, too, the tramping of the horses firms the soil, and the cultivation may not be deep enough to loosen the soil in the track. For these and other reasons tillage at all times should be at least two inches deep. This is shallow tillage, as is mere scratching of the surface. I now believe that I have sometimes made a mistake in setting the

cultivator so very shallow—even at the last cultivation of a crop. (1)

Deep tillage is that which cuts off many good feeders of a plant in the middle, and shallow tillage is that which stirs the top soil well while leaving the roots alone. The plant roots that run within two or three inches of the surface can not serve the plant well when a drouth comes, and the few that are so near the top of the ground should be sacrificed to that the others may be protected by a well stirred covering of soil. We go to an extreme when we fail to run the teeth or shovels deep enough to make a mulch of dry earth on the surface, and are safely practicing shallow cultivation so long as we do not go deeper than three inches, at least a few inches away from the plant. The old idea was that we should stir the soil five or six inches deep when over we cultivate, thus breaking off the roots of the plants, and this is what the advocates of shallow tillage oppose. In one case there is thorough stirring of the soil regardless of the roots, and in the other there is thorough stirring of the surface of the soil, leaving the roots unpruned. In all soils of good mechanical condition the latter method is certainly preferable.

But deep tillage at the expense of broken roots may be a necessity when land is in bad condition. In the case of potatoes, if a soil becomes hard packed

(1) All depends upon the crop: horse-hoe roots deep, corn shallow after roots begin to run, as any decay in ripening owing to the necessity of forming fresh roots must be injurious.—Ed.

by rains, being deficient in vegetable matter to hold it up, it often becomes necessary to sacrifice some plant roots in order to get the soil loosened up once more, as potatoes cannot form in a hard soil, unless the season is very wet. It is very true that it is better not to plant potatoes in such land until after a crop of vegetable matter has been given it, but if the potatoes have been planted then deep tillage pretty late in the season may do much more good than harm. Potatoes want a loose soil, and the true way is to keep a soil loose by incorporating decaying vegetable matter with it rather than by deep plowing; but if this is not done deep tillage in some seasons is a necessity.

Surface and level cultivations go together naturally. If a soil be cold and wet, level culture is not so good as ridge culture. Those who have land that is wet are naturally inclined to condemn level cultivation, but if they were thoroughly to underdrain such land their practice would incline to change. In wet seasons deep cultivation and ridging of rows does no harm, but in hot and dry summers the more level we can keep the soil the cooler and more moist it will be; and if the tillage be only from two to three inches deep, but thorough so far as it goes, the plant roots are left undisturbed, and are permitted to do the work for which they are intended. (1)

ALVA AGER.

EXPERIENCE WITH HAY CAPS.

EDS. COUNTRY GENTLEMAN—Your correspondent, W. C. G., on page 419, inquires about hay caps. The inquiry is an important one, and perhaps an experience of several years, and a study of caps and the method of applying, may be of sufficient value to warrant the taking up of some space in your paper.

Experience proves that the following are necessary essentials—1. Lightness and ventilation; 2. Fastening the cap with cords; 3. Quickness in applying.

I think I have found all these; and as success is made up of attention to small matters, you will pardon me if I am painfully minute.

As to the first point—my favorite hay cap is made of common drilling or heavy sheeting, a yard square. This is sufficient impervious to rain; it does not require to be removed to allow the escape of moisture from beneath, and it is large enough to protect the vulnerable point—the top of the cock. To these may be added its cheapness. It is made by hemming on a sewing machine, and turning up the corners and sewing across, to make a kind of loop, into which the cord (a yard long) is inserted. The cord is a hand-spun manilla wrapping or binder twine.

The paper caps are objectionable, on account of the collecting of moisture underneath.

2. I have tried fastening caps with sticks run into the corners, but many times we have wind storms that will blow a well made cock over, or the top off below the cap. To hold a tall cock together under a high wind, it is necessary to fasten it at the bottom, and cords must be long enough for this purpose.

3. Taking a cap with cords, there are three methods of applying:

(a) Driving stakes into the ground at the four corners and tying the string to them. This is too slow. It

(1) Very good indeed.—Ed.

would be an exceptionally good man who could put on a cap in this way in two minutes. Suppose you have a hundred caps. It would take 200 minutes, or three hours and twenty minutes; and, besides, 400 stakes make a respectable load of wood. Furthermore, it requires too much time to remove the caps and pull up the stakes and gather them up.

(b) Tying the strings to stones. This would require, for a hundred caps, at least 300 lbs. of stone to be carted on to a respectable mowing field.

(c) The method I have worked out. The free end of the cord is permanently fastened to the middle of a small hardwood stick, twelve inches long. Sticks shorter or longer than this do not work well. When caps are made, and in removing from cocks afterward, the sticks are laid together in the middle of the cap, two corners or sides folded over the ends, and then the caps are rolled quickly around the sticks. Attention to this small detail prevents the vexatious tangling of strings. Thus made and rolled up, a man can carry about 25 caps on one arm.

In applying the caps, a man either takes an armful, or a boy takes a wheelbarrow load, and passes down the field between two rows of cocks, tossing caps toward the cocks on either side. Then returning, or men following, the cap is picked up and laid on top of the cock, and unrolled, and the sticks tossed over to place. Then, passing around the cock, a stick is taken, and if the cord is too long, the slack is taken up by quickly rolling around the stick, one end is inserted under the edge of the cock, lifted up and the other end set upon the ground, and the job is done, and so well done that Boreas may get upon a rampage and crack his lungs to no effect, while the men serenely eat their supper before the sun goes down.

Sometimes, however, on cocks of Hungarian, high as your head, the strings prove too short. In this case the stick is inserted into the hay at any convenient point.

In this fashion of putting on hay caps, one smart man can put on a hundred caps in much less than a hundred minutes, and he can remove them and roll them up ready for future use in half the time.

I maintain that this method of putting on hay caps makes hay caps practicable. As to their value, I have had clover beautifully cured under a square yard of drilling during a seven day's rain. I have had Hungarian come in sweet and bright after standing out eleven days, with only one interval of passable hay weather, long enough merely to tip the cocks over and double them up.

J. N. PARDEE.

Hay Caps.—I have had several years' experience with the Symmes, as well as the home-made article of two-yards-wide unbleached muslin. The former are very good when new, but after a few years become somewhat flattened, so that the shocks have to be made inconveniently large or very flat in order that the edges may rest firmly against the hay, to prevent blowing off. In case of continued and frequent showers, partially cured clover will spoil at the top of the shock unless the caps are removed often, and sometimes it is difficult to do this and not get caught in a shower with shocks uncovered. My cloth caps are made six feet square, with pieces of the same cloth about ten inches long, doubled about an inch wide, sewn on the cor-

ners two or three inches. One person can easily carry 30 from barn to field. They are fastened securely by twisting the corner strips round in the hay, making a band or rope of the latter, which can be quickly run under or into the shock. Two persons at opposite corners can cover shocks rapidly. Using stones or pegs at the corners seems clumsy and slow. These caps may be left on any length of time, as they shed the rain almost perfectly and permit the moisture from within to escape. In this climate, where the nights are cool and dews heavy, hay will cure much faster if covered while hot than if covered late in the evening or left uncovered.—E. P.

Biltmore, N. C.

MISTAKES AND FAILURES

ED. HOARD'S DAIRYMAN:—I once put corn in the silo when it was immature, kernel just forming. It developed a high acid, lacked feeding value and keeping qualities—a costly mistake. Experience has taught me to wait until it has dent.

Years ago I cured clover by allowing it to lie in the swath after the mower until dry, then put it in the barn; the next fall drew it nearly all back to the field in the shape of manure, without having received the benefit of much of any feeding value. Experience says, cut clover early, cock up in small piles when wilted, and let stand two or three days, then open to air for a few hours and put under cover.

I once thought it best to cultivate corn four or five inches deep. Never thought of where the corn roots were and that I was greatly interfering with their silent and mysterious work. Experience has since told me that I was not a student of my business or I should not have worked the soil deeper than two inches, and instead of using large shovels I should have used small ones or knives, to keep the surface soil very fine.

I have bored holes through the cow stable floor to get rid of the liquid manure, and once I thought it necessary to keep the barn yard heavily mulched until fall; this most costly mistake that I ever made, was quickly remedied when I paid attention to the experience of other men. The liquid is all saved now by the use of tight floors and absorbents, and no mulch is found in the yard.

During the recent cold snap and heavy frost I saved the strawberries by covering them. My grapes at that time gave promise of four or five bushels of fruit. I had enough cotton cloth, hay caps and stack covers to have covered them, but I did not do it. How sorry I now am that I made such a mistake.

I have two grade Short-horn cows that were fresh in milk last September, that are now giving 40 lbs. of milk each per day. In a recent test these cows tested 4.4 and 4.8 respectively. It is a mistake that all of my cows are not as good as these two.

Years ago I raised pigs from grade sires and dams; that was a mistake. Experience has demonstrated time and again that it costs less to keep

pure bred swine, they have greater power of assimilation, and produce more pork from the same amount of feed. It is a mistake to breed from grade sires with any kind of stock, they lack the power to transmit good qualities.

The time was when I turned spring calves out to pasture as soon as grass got nicely started. I let them have a little grass, a little skim milk, lots of flies and hot sun. I now keep them in a stable with ground floor until fall; bed frequently, with straw to keep clean, land plaster and dry earth to absorb liquid; feed skim milk, oats and clover hay, and have good calves.

C. H. EVERETT, Rock Co., Wis.

ABOUT GREEN MANURING.

EDS. COUNTRY GENTLEMAN—Are you satisfied that green manuring is a good thing, i. e., plowing under such crops as rye, buckwheat and clover? Which of all these or any crop plowed under is most economical and beneficial, all things considered? Does plowing under green crops sour the ground? At what stage of their maturity should they be plowed under? How does the benefit of a crop plowed under compare with a liberal coating of barn manure? What crop should be put on the land after a green crop is plowed under?

Bradford County, Pa.

Green manuring is a good thing under certain conditions. Wherever the soil is deficient in humus it may be practised to advantage. Usually we find a deficiency of vegetable matter in gravelly and light soils. Such soils, being porous, give opportunity for the vegetable matter to break down rapidly and for the nitrogen to escape through drainage water.

As a rule, although there are some exceptions, no regular crop should be plowed under. Catch crops of rye, buckwheat, clover and the like may often be used to advantage. For instance, a field upon which corn is raised this year, if the soil is light and lacks humus, might be sowed to rye just before the last cultivation; or, if the corn is cut early for ensilage, wheat or rye may be drilled in without the ground being plowed. In some parts of the country very favorable results are secured from sowing crimson clover after the last cultivation. (1) We notice that in some localities this practice has not been successful. With you it is probable that crimson clover will succeed, though not at all certain.

The best crop to plow under is common red clover. Cut the first crop for hay, leave the stubble to start and, when headed out, plow it under.

As stated above, it is seldom a good practice to plow under a good crop simply for the manurial and physical benefits received.

On land that is already full of vegetable matter, a large growth of rye or buckwheat plowed under when green is very likely to sour the land; but in case it is plowed under, it would be well to add a dressing of lime to correct the acidity.

If the green plants plowed under are the result of a catch or intermediate crop, then plow whenever the ground has to be prepared for the crop

(1) *Trifolium incarnatum*, i. e. crimson clover, does best on a stubble simply harrowed in. We have grown it in England, as long ago as 1845, and always succeeded in this way.—Ed.

which has to be harvested, having no reference to the maturity of the manurial crop.

In the last week or two of the growth of plants a vast quantity of valuable growth is developed, while the per cent. of water is materially decreased; hence there is less danger of souring the land from plowing under fairly mature crops than from plowing under immature crops.

A liberal dressing of barn manure is likely to be far more beneficial than a crop plowed under, especially if it is one that is not a nitrogen gatherer. Rye, buckwheat and the like bring no plant food to the soil. They only serve as digesters, that is, they prepare the food for the other plants which are to follow; while clover and other leguminous plants not only digest and make more available the mineral matter in the soil, but they also bring a positive addition of nitrogen to the soil through the action of the living organisms on their roots.

Any crop may follow after plowing under green manures, although wheat or rye is likely to succeed best. A second clover crop plowed under about the 1st of September is a most satisfactory beginning for a successful wheat crop. (1)

The Dairy.

SALE OF Mr. BAXENDALE'S DAIRY-SHORTHORNS.

Large framed good dairy cows, with capacious udders, they were all that a dairyman or London milkman requires, whilst the few pure-breds showed the hair and quality and a little more substance, so desirable for crossing purposes. At least 300 people surrounded the ring and partook of a bountiful lunch, provided with that fine old-fashioned, hearty hospitality for which the host is so well known in the counties of Herts and Essex. He presided, and, in giving the health of Her Majesty, was able to say how he witnessed both her coronation and her mile. Mr. Woodhouse gave in turn the host's health, and in a very characteristic speech he recounted the ups and downs of farming. His father took cups for roots in 1811 and 1813, and knew Coke of Holkham, (2) who increased the value of his land from 5s. to 30s. an acre. It was thought that between Waterloo and the Reform Bill English agriculture could never rally, but prices revived, and after the recent twenty years we might still even yet see prices mend. "Speed the plough" was not the way at present, and he thought it was to better stock we must look if we wished improvement. Every animal was tied up in the cowstall or strawyard, and there was not a faulty udder in the lot. They were in a transition state, some having partially lost their coats, and others, having recently calved, were pulled down in condition. They would no doubt have shown to more advantage on the pastures, and the young things would have looked better 10038; still, with the large number to sell, it was necessary to have all in order for the incoming to the ring. Many of the earlier lots were in years,

(1) But wheat hates a loose bottom: now the unrotted clover makes the bottom of the furrow loose, and therefore the clover should be ploughed in as early as possible.—Ed.

(2) Afterwards Earl of Leicester. His son, the present Earl, was born when his father, whose very image he is, was 72 years old. Ed.

and had earned their laurels in the London Dairy Show, or at the "Royal" and county meetings. Moreover, a careful milk record was given of every animal, even to the yield on the morning of sale. Competition was brisk and general. Lot 4, Pretty Face, was a fine, square, heavy cow, plainish in colour, but a rare milker, and bought 31 gs. from a Croydon dairyman. Lot 8, Drayton, also a phenomenal dairy cow, with a return of 16 quarts daily for every day in 1894, equal to 14,600 lbs., was bought by Mr. Tindall for the Brooklesby estate in Lincolnshire at 33 gs., and her calf fetched 7½ gs. Mr. E. H. Cartwright also took three good cows into the same county. Mr. Parham bought largely for Mr. Lewis Phillips, of Epping; Mr. Heinemann bought a number of cows for his estate at Lamorbey, Kent, and Sir Oswald Mosley an equally nice lot of heifers fo. Rolleston, Derbyshire. Mr. Kirby took three good young red cows to Sweden, and Mr. Chistenson also made a good selection. Some of the younger heifers, which were particularly well brought out, sold remarkably well, too, and for the bulls the competition was just as keen. The sale was over before four o'clock, with the very satisfactory average of £23 2s. for the seventy-two head.

RECORD OF A SHORTHORN.

Well, I promised about a year ago, when we were interested in chicken talk, I would give you a chat on the "Milking Stool," and the first thing that called my attention was in THE STOCKMAN of May 2, on page 6, on Calves and Cow Talk, and I thought how few of the farmers in this section are taking a good farm paper. If they did they would not be taking stock in a \$1,000 creamery. So many of them keep 5 or 10 cows in about the same way as the man you speak of—"Cows were not up last night."

Now there is another thing I do not understand. We have Jersey men and Holstein men in Warren county, but they do not advertise. I wonder if the are ashamed of their stock. Now I will give you a record of a grade Durham, which came in April 6, 1894. Made 21 pounds butter, and sold \$10.40 worth of milk, and gave 1,327 pounds of milk in that month. The year May 1, 1894, to May 1, 1895 she made 72 pounds of butter, sold \$37 10 worth of milk, kept two families in milk and raised a calf. She was dry two months of the year.

I have thought so many times of what you said in issue of April 4—"What has become of the Shorthorns?" I am not advertising them, but why don't we hear from them in some farm paper? I do wish every farmer in Warren county would take THE STOCKMAN. It would be more benefit to them than the best calf they could raise every year.

I commenced keeping a record this year and I think it will be better than it was last year. If any good farmer will read THE STOCKMAN this year and take the advice it will give from its readers I think many cows will give two quarts a day more milk than they would to follow up the old plan.

We have had no rain for a long time and it is quite dry, but things that are planted are growing nicely. They are plowing without any trouble, and the grass looks nice.

Warren county, Pa., May 3.

J. W. HUGHES.

THE SIZE OF COWS.

The Holstein-Friesian Register is much grieved by part of an article that appeared in the *COUNTRY GENTLEMAN* of April 4, and "goes for" the writer in the following terms:

Listen to this piece of concentrated ignorance from Hollister Sage, whose word "goes" as a dairy writer:

"But some one says these little cows are good for nothing for beef when we have got through making butter. This is true and it is also true that we don't buy a sewing machine or a mowing machine with the view of what they will bring at last at half a cent a pound as old iron. We overlook this, and buy them for the work they will do, and demand that it shall be done in the quickest and most satisfactory manner. Don't buy a cow for the beef she will make five or ten years from now."

Say, Hollister, did you ever keep cows and farm for a living? Did you find 60 per cent. of your calves were bulls and had to be raised for veal or steers, or there would be no profit in farming? Did you find that 10 per cent. of your cows lost a quarter or became unfitted for milkers and had to be turned into beef, in the course of your experience? Did you ever calculate what all these contingencies mean in running your farm, and did you find the calf from the small cow would only bring 25 cents as a deacon skin, and only the lowest price for veal if you roasted it; did you find the little old cow was a piece of beef that nobody would buy, when she got injured and you were forced to use her for beef?

Did you fat the little cow when she lost part of her udder and then have the butcher tell you that he wasn't paying much for a bag of bones?

Perhaps you never really "farmed it" much, Hollister, with little cows. If you did, why didn't you extend your principle and keep goats, and get 12 per cent. fat from feeding tin cans and waste paper?

CHEESE-MAKING AT A CHAMPION CHESHIRE DAIRY.

Mrs. Blackshaw, lecturer in cheese and butter making to the Cheshire County Council, of Marton Dairy Institute, and Macclesfield, has presented to the Cheshire County Council a valuable report on the methods adopted at the dairy of Mr. Houlbrook, who won the champion prize at the Cheshire Royal Show. She writes:—"At Mr. Houlbrook's dairy, though the art of cheese-making is carried on to some extent by 'the rule of thumb,' there is an intelligent knowledge of why this operation or that change is necessary, and a clear insight into the simple laws governing the changes which ought to take place in the milk preparatory to making it into cheese. Great care is taken to avoid having the night's milk too ripe before the morning's milk is added, and also to prevent the development of too much ripeness or acidity in the subsequent manufacture. Enough, but not too much, is the standard aimed at. Cleanliness, the keynote in first-class dairying, is also a prominent feature, every article, from the milk pan to the cheese press, being kept scrupulously clean. The dairy, which is a large apartment, contains the milk vat, cheese presses, cheese oven, and whey tanks, the latter well covered. In this room the cheese is made, pressed, and, when finished, carried by a lift to the cheese

room overhead. The following is a record of one day's operations at this dairy:—The night's milk is sieved into the vat, with the exception of a quantity placed in four pans, which are set on the floor of the shed. The temperature of the night's milk in the vat, before the new milk is added in the morning, is 68 deg., that in the pans on the floor being 64 deg. At 6.45 the cream that had risen to the top of the night's milk was skimmed off into pans; these pans were filled with the warm new milk to thin down the cream. After standing about ten minutes, the cream that had risen to the top was skimmed off, and to this some warm milk again added, and afterwards the whole sieved into the mixed morning and evening's milk. Three quarts of the previous morning's milk were carefully strained and added. At 7.30 the rennet was added, the temperature then being 86 deg. seven table-spoonfuls of rennet and five of annatto being used to 140 gallons of milk. It was ready to cut at 7.55, the temperature still being 86 deg., and that of the dairy 64 deg. When ready to cut, the curd was sprinkled with salt and turned over; at 8.10 the curd was gently turned up from the bottom of the vat with the skimmer. At 8.25 the curd was cut once; this was repeated at 8.40, 9, and 9.30, the temperature then being 84 deg. At 10.50 the curd was pushed up, and at 11 was commenced the drawing off of the whey. At 11.15 the curd was lifted out of the vat into the drainer, and cut up twice. At 11.30 it was ground and salted, 8 oz salt being used to 20 lbs. The work was completed at 11.46; 192½ lbs. of curd having been made into two cheeses in 14 in. vats."

Breeder and Grazier.

FATTENING CATTLE CHEAPLY.

EDS. *COUNTRY GENTLEMAN*—In reply to your correspondent from Blair County, Pa., p. 424, you speak of one cent a pound as "a narrow margin" to feed on, but I can feed on that margin with a good profit by substituting crops fodder and straw for hay, and making at least half the grain ration bran instead of corn. I know that bran is not generally looked upon as a fattening ration, but careful experiment has shown that it will fatten economically and well when fed with no other grain, and when fed with corn it balances the ration and helps digest the corn, so as to get more grain from it than if it was fed alone.

I can feed cattle on a much less margin than one cent a pound also, by buying them in March and keeping them one hundred days, the last half on blue grass. There are several advantages in this. First, in buying at that season, your cattle have all of what butchers call the gross out of them, and the cattle will at once begin to gain, while if you buy in the fall they are likely to shrink considerably in the transition from pasture to dry feed. Secondly, a large part of the feeding is done when the conditions are favorable, the cold storms are over, and the heat of summer and tormenting swarms of flies have not come, and the water is pure and good at this season of the year. Thirdly, the tender appetizing blue grass makes the best and cheapest food with which to lay on fat that we can have, and the start from grain feeding, for five or six weeks before the cattle go to pasture, gets them ready for market a little ahead of cattle that have had no

grain, and usually the early June market is among the best of the year.

It is not necessary to give full grain feed at all under this plan, but feed fairly well till turned to pasture, and then give one feed a day, just what they will eat clean—always feeding at a regular hour. Cattle on good pasture will eat just about half the grain that they will when on dry feed, and a pasture will carry twice as many cattle with one full grain feed a day, as it will if they must rely entirely on grass.

The editor is right in saying "all farmers will not make a given quantity of food do the same work." There are many points to be observed, such as a comfortable bed, keeping the animals clean, feeding and watering at regular hours, feeding a regular quantity, &c. One over feed will do cattle more harm than can be undone by a week of care, and any one who expects to make a profit from feeding cattle must be ready to sacrifice his own comfort for their good.

WALDO F. BROWN. *Butler County, O.*

FEEDING YOUNG CALVES.

EDS. *COUNTRY GENTLEMAN*—Seeing in a journal a description of a device in which to hold a calf to teach it to drink, nothing more than a bench a little higher than the calf's legs are long, with four holes in the top at distances so proportioned, and large enough to take in the calf's legs, and then a larger hole yet under the calf's nose in which to set the pail, and the machine is complete. Put the calf on the bench with legs in the holes, the milk in front and the rest is easy. But why not put bits in the calf's mouth and save the use of the fingers in teaching it to take the milk?

All this is preliminary to the question: Why go to all this fuss and calf lifting?—for it is doubtful if the calf will ever become so attached to the plan as to jump upon the table and slip its own legs into the holes. Why not feed the calf from the start, and never let it suck its dam? Calves that have never suckled are taught to drink in less time than one can be adjusted to this leg trap. For some years it has been our plan to feed the calves from the start, especially a heifer's first calf, and we have always found there was little learning about it; as quick as the calf tasted the milk, it drank quite as well as it would draw its first meal.

I am of opinion that in the long run the calf is better off, and the cow too for that matter, if the calf is not allowed to draw its own milk, but is fed from the first. Of course some one will say that this will stifle the mother instinct, and that the drawing of the milk by the calf is necessary to stimulate the productive agencies of milk secretion; but two or three days will make little difference, as the calf rarely remains with the mother longer than this; and if the calf is tied at its mother's head for two days where she can bestow her "caresses" upon it, it will soon become an old story, and the cow has been milked, and the calf fed with less trouble in allowing the calf to suck. When it gets this art well learned, to teach it to do another which is conducted upon quite another plan, often combines with it "ground and lofty tumbling" this would do credit to a country circus.

With heifers, especially, I think it the best plan that, while allowed to

"mother" their calves, (1) they shall know there is but one way of relieving their udders—hand-milking—and then there is never a conflict of opinion between milker and heifer about this operation. But, quickly finding that the man is the milker, her maternal affection soon centres on him, and he becomes her object of bovine "affection," and there is an absence of the exhibitions often called "breaking heifers," and so often their ruination; and thus, only knowing the one way of giving her milk, there is no occasion for holding it up for the calf—in her mind a clear case of robbery—and in my judgment the heifer will be altogether the better cow for it.

In this matter of calf feeding there is a train of disorders and diseases that are ascribed to various things; but if the truth were known, I suspect that sour feeding pails and foul places where the calves are tied, or are forced to inhabit, are the causes, nine times out of ten. In feeding, where one feeding pail is used for the little herd, and the last calf has got rather large homeopathic doses of the leavings, and slobber of the others, and added to the fermenting germs of a pail that has been guiltless of hot water and a scrub-brush since discarded as a milk-pail, there is little wonder that some calves do not do well, and are troubled with the scours, and look badly generally.

The little calf is an animal that can stand any quantity of cleanliness and sweet food without suffering from its effects, and does a great deal better with a dry and clean bed than where it is often found with a wet, fermenting mass of filth under it, and skim-milk rations of varying degrees of warmth and approaches to acidity, fed in an ancient pail, the seams and splints of which are the camping grounds of countless swarms of bacteria of every living kind that please to plague the dairyman. Feed the calf skim-milk—that's all right, but feed it sweet and warm, feed wholesome (2) grain and shorts with it, and give it good sanitation, and see if the calf will not be the better animal, "know" more, do better, and come nearer fulfilling expectations, from the fact that a few of the things mentioned here were followed—of course excepting the feeding bench.

Western Reserve, O. JOHN GOULD.

Garden and Orchard.

STRAWBERRY PLANTING.

Method Which Is Reasonably Sure to Bring Good Results.

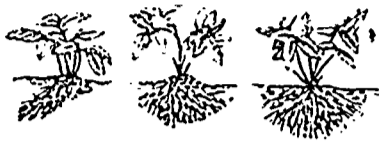
In planting strawberries there is a right way, and there are a number of wrong ways. What we are after in ordinary culture is to induce a reasonable number of plants to make an early start, in other words, to have them in good growing condition before our usual midsummer drought, so they will give us a nice matted row. We find that the earlier we plant after the land is in readiness to receive the plants, the more surely do we reach the coveted result. Usually we can get better plants in the early part of the season than will be obtainable later. Atmospheric and soil condi-

(1) It certainly used to be supposed to improve the size of the teats. In our young days, every Kentish farmer allowed the first calf to suck the dam.—Ed.

(2) Crushed linseed.—Ed.

tions also are more favorable then. The plants start promptly, and soon fill the rows with strong runners.

The right way of planting always presupposes the use of good strong plants. Some of our nurserymen are not careful enough in the sorting of the plants they ship, and only too often have we received strawberry plants that were utterly unfit for planting. If one can procure plants



Careless. Too High. Just Right.

SETTING STRAWBERRY PLANTS.

from a near neighbor, dug up from a young bed that has not yet fruited, no better chance need be looked for. But we want to get these plants when they have just begun to make a new growth in the spring, and we are bound to set them as soon as they are dug. If it is unavoidable to keep them for a few days, on account of unsuitable weather or unprepared soil, the plants should all be heeled in, every plant by itself, not left in bunches together. If kept in bunches, the roots will surely mould and die.

The right way also includes planting at proper depth, and with roots well spread. One of the latest Cornell bulletins explained this with an illustration (here reproduced in smaller size.)

At the left we see a sample of careless planting. The roots are "just stuck" in the ground in a bunch together, and in cramped quarters. The plant shown in the center is evidently set too high and will suffer, while the plant at the right is set as it ought to be set, the crown just even with the soil surface, and the roots well spread.—American Gardening.

METHODS OF VINES.

How Climbers May Be Best Trained in the Garden.

Climbing vines have many different methods of attaching themselves to their support. Some encircle a branch of the post by twining their main bodies around the support. A hop vine is a familiar illustration of this. More delicate ones cannot twist around their stakes, but have to have string or similar material to cling to. The ordinary morning glory is an illustration of this class; but there are some which simply climb by twisting the leaf stalk around the support. This is especially true of different kinds of clematises, yet it is not unusual in some gardens to see stacks as thick as walking comes put for the clematis to run up on; but, as it is unable to do this, they have to be tied to this pole by twine, while the leaves go on twisting themselves in order to find something to cling to, and as a consequence the vital powers of the plant are exhausted. In many cases the clematis, especially the variety known as Jackmanni, will die completely and suddenly from the attack of a minute fungus; but it is more likely that this occurs oftener in cases as described—for want of proper means of support. Thread or twine for the leaves to twist around, or even a little brushwood, such as we would give to a crop of peas, is much more likely to produce healthy and vigorous clematises than when they

are deprived of all means of using their leaf stalks as tendrils.—Meehan's Monthly.

Keeping Fruit Trees Dormant.

The uses of "cold storage" in keeping meats, fruit and vegetables in an unchanged in condition are well known, but the modification of this process called "cool storage," as applied to trees, etc., is more novel. It is such an arrangement of packing-house and cellar that all extremes of temperature are avoided and a medium preserved in which nursery trees will remain dormant for any length of time. A Western nursery firm last fall had trees in its packing houses which had been there twelve months and were in perfect condition. Apparently they could be kept through the winter in the same conditions and be ready to grow when planted out. We do not know that the length of time trees could be thus kept has ever been tested.—Country Gentleman.

How to Destroy Garden Slugs.

The best remedy known for garden slugs is freshly slaked lime scattered over them while feeding during the morning or evening, we would state for the benefit of a subscriber. If two applications are not effectual, the dusting should be repeated at short intervals. The slug has the ability of throwing off its slimy coating and with it whatever obnoxious substance has been applied to it, but if the applications are quickly repeated—from its diminished power of secreting a new coating of slime, the lime of other substances takes effect upon the skin and kills the slug.

THE HONEY LOCUST.

It Has Proved Its Wide Adaptability in a Number of Instances.

The honey locust has a much greater western range than the black locust, and it possesses many qualities that should make it a general favorite. It has been extensively planted, but has been to a limited extent only. Indeed, so far as I know, its only use, except for fuel, has been as post-timber. The wood is hard and takes on a beautiful polish, while in color and grain it is much more attractive than several fashionable cabinet woods.

Repeated efforts to grow the honey locust at the agricultural college of South Dakota failed. The young seedlings grew well the first year, but were killed, root and top, the first winter. In northwestern Iowa, twenty-five miles northeast of Sioux City, there is a fine specimen of thornless honey locust, and in the grounds of the Iowa agricultural college is the handsomest thornless honey locust I have ever seen. Its trunk is about 2 feet in diameter; the crown is round and well developed, with a spread of branches of about 50 feet across, and altogether it is a tree of great beauty.

Prof. Silas Mason, of the Kansas agricultural college, planted a quantity of seed of the thornless variety of the honey locust for years ago, and has a half-acre plot of trees from 4 to 9 feet high. Not more than half the trees are free of thorns, and there is every gradation, from smooth to very thorny specimens. These thornless honey locusts cannot be too highly recommended for lawn planting. They give a light, though sufficient shade, and their finely divided foliage and long brown fruit pods make them very attractive.

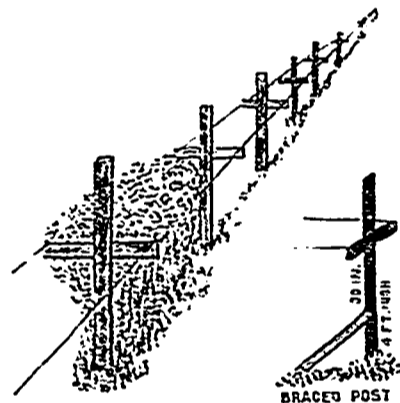
On the dry uplands of western Kansas the honey locust is one of the most flourishing trees, as is proved by the fine growth of a plot of the species at Ogallah, where it surpassed the black locust in size. At Hutchinson, in the moist soil of the Arkansas valley, it also makes fine growth, thus proving its wide adaptability. Thrifty trees were seen in the suburbs of Denver, grown under irrigation. Honey locust grows well throughout central and southern Nebraska. In an eight-year-old plot at Lincoln specimens twenty feet high were seen.

A number of years ago the honey locust was extensively tried as a hedge plant, but it does not lend itself well to this use. It is too rampant a grower, and no amount of lopping, weaving, bending and pruning can keep it within reasonable bounds.—Garden and Forest.

THE RED RASPBERRY.

A Device for Keeping the Vines from Sprawling all Over the Lot.

My way is to firmly drive 4-foot stakes one rod apart and nail to each, 30 inches above the ground, a short piece of plank 2 feet in length and saw a notch close to each end of the upper edge. In these notches firmly stretch No 16 wires and brace back the end posts. The accompanying illustration makes perfectly clear this

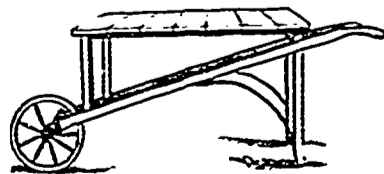


simple and effective way of doing the work. The advantages of keeping raspberry and blackberry vines from sprawling all over the lot will be best appreciated by those who have tried this method.—W. M. King, in American Agriculturist.

A FRUIT BARROW.

One in Which Berries and Grapes Can Be Wheeled Without Spilling.

The ordinary wheelbarrow is unsuited for wheeling baskets and boxes of fruit, such as plums, grapes, straw berries, etc., because of the slope of the bed. The accompanying illustration shows a fruit barrow that is free from this objection, and one that will be found equally convenient in wheel-



A FRUIT BARROW.

ing other articles that must be kept quite horizontal to avoid spilling. It can easily be made if one buys one of the light iron wheels that are now sold at hardware stores for just such uses as this.—American Gardening.

How to Buy a Spraying Pump.

If you have an orchard, you can keep the apples from being wormy by spraying with Paris green. A pump for this purpose costs about fifteen dollars, and you think that you can't afford it. Well, how about your neighbor? If he has an orchard, it may be that he thinks about as you do. So how about getting a pump between you? Then you can both have the use of it, and when you come to dissolve partnership, let the one have the pump who is willing to pay the most.—Southern Cultivator.

The Care of Rose Bushes.

Cut back the rose bushes, so as to get more new wood. They can stand considerable shortening and will be benefited thereby. Rose bushes will not thrive on grass plots. They must be on rich land and kept clean of grass and weeds, while the soil should be loosened slightly on the surface occasionally. They should not be cultivated too much. Simply keep the ground clean.

NOTES AND NOTICES.

We call the special attention of our readers to the advertisement of Dr. Ed. Morin's medicines.

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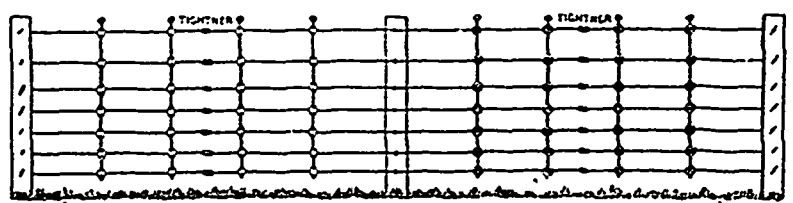
DRIES IN SIX HOURS. Ready Mixed Paint, 42 shades. Special lines for outside work. Liquid Oxide Roofing Paints.

P. D. DODS & CO., 188 and 190 MCGILL ST.
 6-95-61

Buchanan's Flexible Spring Steel Picket & Wire Fence




This Fence, as shown is above cut, is very handsome, strong and durable, should last a life-time and will turn any kind of stock. It is constructed that it will remain tight and straight in all kinds of weather, a feature which no other maker has successfully accomplished. It is perfectly flexible and cannot be bent or kinked out of shape, and will stand more abuse or rough usage than any other fence in the market. It is our aim to place this fence on the market at a lower price than any first-class fence has ever been sold at. Send for circulars, giving full description and prices to
M. T. BUCHANAN, INGERSOLL, Ont.,
 Manufacturer Wire Fences, Hay Carriers, Hay Forks, and a full line of Hay and Grain Unloading Tools. Agents wanted.
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No better wire fence built than the **Casey Diamond Grip.** Just the thing for Farmers—neat, strong and durable. Will last a lifetime, barring accidents. Uses only straight wires with so little depression as not to cause the galvanize to crack or peel. If there is a dealer who wants something better to handle than he's had, try it. We also supply the **Double Lock Wire Fence**, which is claimed by some to be second to none, the lateral wire of which, as well as the lateral stay, being crimped at joints. Our agents built either on premises. Agents wanted everywhere in Canada, to whom no territory will be sold. County and Township Rights to sale. Our **Gas Pipe Frame Gate** takes the lead. No better or cheaper place in the city to get plain or fancy turning cone. Call on, when in the city, or address,
CANADA FENCE CO'Y, Cor. Bathurst & Clarence Sts., London, Ont

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 Belrock, Nov. 27th, 1894. E. M. YORK.

REPORT CONFIRMED.

We are the cheese manufacturers to whom the milk from the cows above referred to by E. M. York, Esq., was delivered. We have examined our books and find the above reported differences correct. Moscow, Nov. 27th, 1894. VANLUVEN BROS.

BE—The cost for Horses, Cows, Bees and Hogs is only one cent per day. For Calves, Cattle, Sheep and Young Pigs about 1 1/2 cents per week. It is valuable for hens and turkeys and for their chicks. If not sold in your town or village, write to
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