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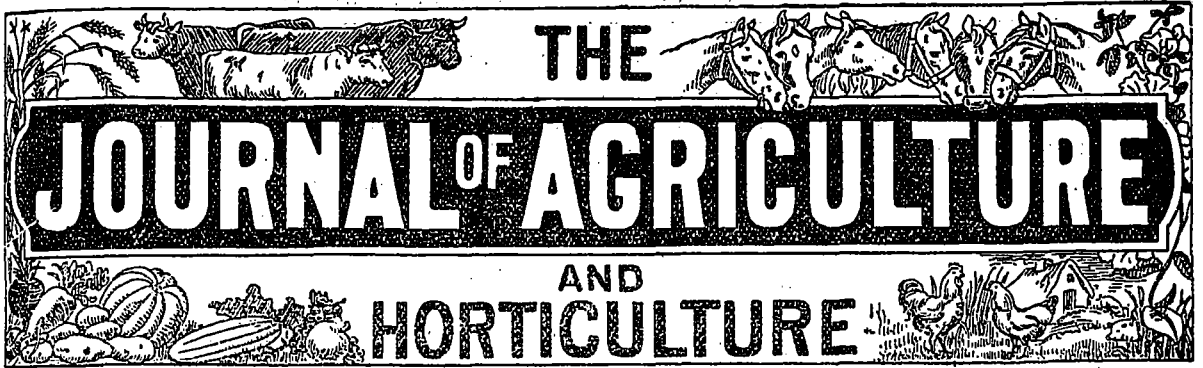
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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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- THE -
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The Farm.

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Pig-food.—A rather curious result has been found to follow certain experiments made on pig-feeding, at the Minnesota Station. Where *barley* was made the predominant factor in their food, the appetite of the pig was found to weaken if that ration was continued to be exhibited for too great a length of time.

Now, we have had a considerably extended experience in fattening pigs for the London market; we have often sent thither more than a hundred pigs in a season. These pigs were always fed on barley-meal, with no other food added but skim-milk and buttermilk, from their weaning till their slaughtering, and we never found their appetites fall off in the least.

But, on the other hand, we agree very heartily with the deduction made by the experimenters at the same station as to the effect of making *oats* the predominant factor in a pig-ration. They found that the grain in question did not cause a profitable increase in the pigs, either while they were growing or while they were being fattened.

The true way of dealing with swine depends entirely upon the age of the animals. If it is desired to market them as "small roasting pork," i. e., at from 60 to 68 pounds carcass-weight, pigs should have nothing but barley-meal, and, perhaps, a little corn-meal if to be extra fat, with as much skim-milk, buttermilk, or whey, as can be easily come by. If for bacon-hogs, fatten them

on barley-meal, or corn-meal, and finish off on whole pease and water for at least three weeks. Hardly necessary to add that fresh air and exercise are indispensable for bacon-hogs, from weaning time to putting up to fatten.

Mast, the general term for the various kinds of nuts, etc., pigs pick up in the bush, entered largely into the food of those animals in the noble woods of Kent, in our younger days. The beech-mast produced a soft, oily pork, unless the pigs that had run in the beech-groves—chiefly met with on the chalk-hills—were kept for a considerable time on other food before being killed. But the acorn, marvellously plentiful in the Wealds of Kent and Sussex, was quite a different thing. Not that even acorn-fed hogs should be slaughtered when fresh from the bush. An interval of say three weeks should intervene, during which time pease, again, should be their food, and then the feeder may expect to find his bacon as firm and as finely flavoured as the taste of man can desire.

We used to turn out from 30 to 40 pigs in October, every *acorn-year*, and they returned in about 6 or 7 weeks in fine condition. But now, thanks to the mania for preserving pheasants for *battue*-shooting, that can no longer be done in England; for the pig, possessing a very discriminating palate, refused to content himself with the food nature offered him, and attacked with delighted ardour the stacks of barley put up by the gamekeepers for the delectation of the game. Consequently the pigs but too often went a-missing, and the practice of turning them out *acorning* had to be abandoned.

Weight of sheep.—We see, by an exchange, that the average weight of sheep at Chicago market, throughout the year, was, in 1898, 86 lbs.; live-weight, we suppose. Surely there must be some mistake here, for a sheep of that weight would not probably give more than, at most, 48 lbs. of carcase. Any day at the autumn-fairs, where the large flock-masters of the South of England sell off their wether-lambs, plenty of "tegs," as they are locally termed, may be seen that will give ten stone, 80 lbs., of dead weight. But then, these are Hampshire-downs, and their precocity is known to most of our readers.

By the bye, we should be very grateful if Mr. James Cochrane would let us know if he has had much demand for his Hampshire-down rams this fall. We are vain enough to think that our persistent enlogy of the breed may have had at least some slight influence on his purchasing of his small flock, and we hope most sincerely that it has answered his expectations.

Clover-hay, we see, is quoted, in the Montreal market, at six dollars a ton of 2,000 lbs., equal to about the same for the London *load* of 2,016 lbs. What does pressing and baling cost a ton? Surely, there must be a margin, a considerable margin, one would think, between the above price here and the £5.00 good clover-hay is worth a *load* in London. There must be some farmers here who know how to deal with clover properly, and can keep the leaf on the stem, one would think! Some good clover-hay would have been made this year in the Ste-Anne district, but unfortunately, owing to the cows having been allowed to gnaw-down the plant last fall, there was but little hay of any kind, and positively no clover at all. It cannot be right, in a country with such winters and springs as we have here, to allow the cows to stray over the whole farm, making a clean sweep of every blade of grass that, allowed to grow, might possibly act as a detainer of the snow and thereby protect the plant of seeds from being drawn out by the frost; but that is exactly what cows were allowed to do at Ste-Anne last year and the year before.

The following are the prices quoted for meadow-hay, and clover-hay, by the load of 36 trusses of 56 lbs. each, in the great London markets, on the 8th of October last.

London, Cumberland, Thursday.—Best hay, 75s. to 84s.; good, 70s. to 75s.; inferior, 50s. to 65s.; prime clover, 80s. to 97s. 6d.; good, 70s. to 75s.; inferior, 60s. to 65s.; straw, 28s. to 33s. per load.—Dumbelton and Sons. (1)

London, (Whitechapel), Saturday.—Superior picked hay, 82s. to 85s.; good has to 80s.; inferior, 50s. to 65s.; best clover, 95s. to 100s.; good clover, 84s. to 90s.; inferior, 60s. to 75s.; straw, 28s. to 36s.—Gingell, Son, and Foskett, Ltd.

Our readers will observe that even medium qualities of clover-hay are noted as being worth

(1) Straw is sold by the load of 36 trusses of 36 lbs. each. Ed.

about 84s. to 90s. a load, or, taking the middle between the two, 86s., \$20.64 a load, more than three times what ours is selling for here, or, exactly, $3\frac{1}{2}$ times as much.

Charlock or wild mustard.—Experiments on the best methods of destroying this noxious weed, that covers each side of the G. T. R. and the C. P. R. from Montreal to Vaudreuil with a carpet of gold, every June, have been carried on in England throughout the past summer. The result is, as well as we can gather from agricultural papers and magazines, that the sulphate of iron is useless for the destruction of charlock, but that wherever sulphate of copper was used a beneficial effect was observed, an effect measurable by the quantity and strength of the solution, and the age and size of the weed. The most approved application seems to be, to the acre, 40 gallons of water with 2% of copper-sulphate—about 10 lbs. of copper to the acre. This should be sprayed on after rain, on a sunshiny still day.

Should the mustard have been allowed to develop flowers before spraying, the solution must be made stronger and applied in more liberal quantities; 60 gallons of a 4% solution will not be found too powerful a dressing.

The man who uses the sprayer should walk down the drills, and a little practice will show him how many rows can be accurately covered at a time.

Lastly, never spray in windy weather; some drills would indubitably get more than their share and some less.

Ploughing matches.—At a ploughing-match held by the Agricultural Society, No. 2, of Terrebonne, the prizes in the first-class were given in *basic-slag* instead of in money, and a very good plan, too.

Many years ago, it was recommended, by the Legislative Assembly at Quebec, that prizes at agricultural shows should be given in the form of ploughs and other farm-implements. For, as the propounder of the resolution observed, many competitors at the shows only grew a few fine roots in the corner of their garden, or hand-picked a sack or so of grain, thereby winning a few dollars, but doing nothing to advance the improvement of agriculture. The sooner the above recommendation is put in force, the better.

Dry turves or mould, carefully dried before winter sets in, and stored in a shed, or under a cover of some sort, will be found a capital medium for absorbing the liquid manure of the stables and cowhouse. A load of either stuff will be enough for each head of stock. This, scattered about in the rear of the animals will answer as well as, or in our opinion better than, laying our money for plaster. Our friend, Dr. Girdwood, a farmer as well as a man of science, strongly recommends this practice.

Turnips and milk.—In Norway, two cows, in a pasture, were fed there on turnips and milked in the house. Later, the same cows were fed in the house, on hay and turnips and milked in the open air. This was done, of course, to find out if the turnips imparted any objectionable taste to the milk. Although the cows had as much as two bushels of turnips a day, no flavour of turnips was perceived in the milk. Hence, the conclusion was drawn that this flavour is only perceptible when the milk absorbs the volatile elements of the turnip.

The above, extracted from the "Experiment Station Record," is worthy of great attention, and the result is another confirmation of what we have often observed, that the stray turnips picked up by roving cows in the late fall, after the main crop has been stored, convey no ill flavour to the milk they yield.

H A R V E S T.

There is no season so full of happiness to the good farmer as the harvest time; it is then that his labors will be rewarded, and not only is it a time for joy but for vigilance and activity.

The abundance of the crop will greatly depend upon the faithful and intelligent tillage of the land, and the careful manner in which the cultivator has performed his part; and now he will be called upon to secure it in the best possible condition.

If promptness in all farm work is necessary to success, it is peculiarly so in the harvesting of the crop, which must be carefully watched to note when it has arrived at the proper stage of maturity, and then every fine hour must be taken advantage of to gather in it, never putting off until to-morrow what should be done to day.

A great many farmers do not appreciate the importance of securing the hay and grain while it is the richest in nutritive qualities which, as in the case of the grasses, is just when the flowers' are falling and the seed forming; then the juices which are destined to form the seeds are stored up in the leaves and stems, and none of it need be lost in the process of curing, but will contain the very elements which constitute the nutriment of cattle.

The value of hay may be increased or diminished by proper or improper harvesting to an extent that few would suppose, otherwise they would exercise more care and judgment in this important part of their work.

Again, with regard to grain, if oats and barley (1) are cut before they are dead ripe, the corn will not be the worse, and the value of the straw for fodder will be much greater.

In harvesting time, too, the farmer's knowledge of the probable changes of the weather will be useful; some men have the reputation of being lucky as regards the weather, when a more reasonable way to describe them would be to say that they were men of observation and judgment. A farmer need not be an accomplished meteorologist to be able to tell, with some degree of certainty, what the probabilities are, for some time at least; he can do that by observing the various signs, and, by comparing the past with the present, he can form an idea of what may be expected in the near future; this will be a part of the study of the careful farmer at all times, but particularly during harvest.

So, harvest time, although an anxious one will be a period of rejoicing to the man who faithfully does his duty, while to the careless, tardy, and negligent, it will be one of vexation, disappointment and self-reproach. And these sentiments will be contagious: the sunny smile of the farmer will be reflected upon the faces of the whole household. Even the cattle on the place will share in the general joy, and the patient cow, as she quietly chews her cud and yields the overflowing pail of rich milk, will show, by her gentle eye and sleek skin, that she knows, by instinct, that her wants will be well provided for.

On the other hand, he who is inwardly conscious that his disappointment is the result of his own shortcomings, will not be the most pleasant

of associates; he will be morose, fretful and ready to find fault with everything, and blame everybody, attributing his want of success to all causes but the right one. The harvest time for him and his dependants will have no joy.

The question is: "What shall the harvest be?" and the answer is that, under Providence, its abundance or scarcity depends upon ourselves; to the industrious, thoughtful and persevering, it will bring happiness and gratitude; to the careless, slothful and negligent, it will be a season of regret for time wasted and opportunities disregarded.

GEO. MOORE.

FACTS FOR FARMERS.

Potato scab.—Scabby potatoes are becoming very common now, as growers does not appear to generally recognise the grave nature of this disease, which is easily distinguished by the rough and scurfy skins of affected tubers. Sometimes the injury penetrates to a considerable depth, with the result that heavy loss is sustained. The complete life history of the fungus pest is not yet well understood, but experiment has shown that clean seed may be infected if brought into contact with scabby potatoes; that farmyard manure, lime, and ashes all appear to favour the increase and development of the disease; and that potatoes grown in infested ground are always attacked. The use of only artificial manure, or of those that cannot have become infested with the fungus, is a good means of prevention, and one that is often overlooked and even when seed-tubers are selected with considerable care. It is a safe rule also not to plant land in which the fungus appeared to potatoes for several years. It occasionally happens that none but scabby seed of a desired variety may be obtainable for some reason or other, and in such cases it must be carefully cleansed and disinfected by being soaked for an hour and a half in a solution of corrosive sublimate, using one ounce of the poison to eight or nine gallons of water, the soaking being done either before or after the tubers are cut into sets. On the whole it is safer to treat them before they are cut. In any case the treated seed must not afterwards be brought into contact with the disease. We should strongly recommend this treatment being given to all seed-tubers to be planted in uninfested ground, for the planting of

(1) Barley, for malting, must be dead ripe. Ed.

clean potatoes in clean ground leaves no opportunity for the transfer of the disease organism.

Palatableness of stock-food. — We are inclined to think that too much attention is being devoted to chemical analyses in the feeding of stock, and find that in nearly every case animal do better and give more profitable results on a ration relished by them than on the most perfect standard of feeding with less relished foods. The palatableness of any fodder can, of course, be readily observed from the eagerness with which it is eaten, and in most instances it will be found that this important quality, on which digestibility often depends, is natural or inherent to the kind of fodder, though each animal will be found to have its more or less pronounced and individual fancies. Practical trials of various foods will furnish all the information necessary.

NOT QUITE SATISFIED WITH SILAGE.

Ed. *Hoard's Dairyman*.:—There is one thing I would like to ask you. What effect will silage feed have on the cows?

I have several cows and am feeding silage, but I think it rains their insides in time. Now, the first year I fed silage, the cows liked it and got fat on it, but the next year they did not do so well and I nearly lost one cow, and I think sure it was the silage feed, for she got better in the spring, though it was a hard pull to get her through till the grass was fit for her.

The next year I did not fill the silo. They did well. I fed hay, corn stalks and roots. Have always given bran mash warm at night till lately. Now I feed bran dry, because I think with the silo the wet bran is too much for them.

This year, I filled my silo good, all corn cut when it was just right and the silage looks good. Never had it better than now. Yet the cows don't do well; are never hungry; they will eat it but they don't like it. They will not eat it alone very well, so I cut hay or straw and mix with it, then I put bran and salt on it and so coax them to eat.

I have tried it all ways, with and without mixing it. When I am gone out of the barn and they know they will not get anything else, they will eat it. They don't act like that when I give them corn stalks or hay.

Sometimes they are bound up, then again they scour. With all the care I give them, they will

fall off in their milk, and as I am a milk peddler, it is very inconvenient. When I want milk the most, then they give short measure.

Can you or any reader account for it? My best cow freshened this winter and she was quite sick about two weeks after. I gave her two doses of physic per day—the physic prescribed by *Hoard's Dairyman*—but it never seemed to physic her any.

I left off feeding silage. She is better now, but not what she was for giving milk that she was before when she came in.

Now I would like to hear of some one else's experience on silage feed. I like the silo, it is handy and cheap. But I do think it wears it the cows out. I don't think they could stand it many years. I am always in fear. I never know when they will get sick of it and stop eating. I feed silage three times a day, one-half bushel to a feed, mixed with cut hay. ALBERT EDWARDS.

Charlevoix Co., Mich.

Our Michigan friend's experience with silage is so opposite to our own and that of the great majority of those who have fed it for years with the highest satisfaction, that we are utterly unable to account for the results he reports.

NITRATE OF SODA.

Having applied about ten tons this last spring, I am able to report favourable, generally. Upon oats it produced a very good effect, resulting in some heavy crops. On one field it did harm by encouraging the charlock to such an extent that the weed surmounted the oats, and the ultimate effect was that they were cut and converted into hay in order to prevent the seeding of the pest. The land, about 20 acres in extent, was then ploughed, dressed, and sown with mustard, and must come again into corn next year. This is not to be placed against the nitrate as a fertiliser, but the result was contrary to intention, and certainly unexpected. It clearly showed that generalisations as to the effect of nitrates upon cereals, and phosphates upon cruciferæ, cannot be depended upon, for here the cruciferous charlock, under, the influence of nitrate of soda, mastered the cereal.

On cabbages, nitrate of soda always tells effectively, and here we have another *crucifer*. On *vetches* it produces a very marked benefit, and here we have a *legume*—a tribe of plants which is no

generally accredited with benefiting largely from direct applications of nitrates. (1) The best effect I have noticed this season has been upon mangel wurzel, which is much heavier where the nitrate was applied.

Experience on light land tends to the conclusion that a sum of money is on the whole better spent upon 10 tons of cake than upon 10 tons of nitrate of soda. The nitrate is confessedly a one-crop manure, but the cake pays more than twice. First, if well bestowed it should be all paid for by the stock consuming it. Secondly, its use is followed by a fine crop of corn. Third, its effects are seen throughout a series of years, as cake feeding raises the average yielding powers of a farm.

PHOSPHATES AT SKIMBLESCOTT.

Mr. Wallis returns to his descriptions of Skimblescott Farm, and would that we all could participate in such success. It is no use to dogmatise upon the functions of phosphates and of nitrates, as though they were doctrines of an infallible nature. If phosphates produce the effects noted at Skimblescott, they will produce the same effects in similar conditions. Such cases rather show the futility of dogmatising at all on agricultural matters. What is found to answer is our only safe guide, but I venture to assert that phosphates would not greatly increase cereal crops here. (2) Cake in our sheet-anchor, and artificial manures occupy, and must occupy, a secondary position. The saddest aspect of the case is that, with such utterly varying effects, it seems impossible to lay the foundation of a true science of manuring, which will be accepted by those afar off as absolutely trustworthy. It is better in the present state of our knowledge to avoid making generalisations, except as regards our own little enclosure. There we learn what to do; but do not let us suppose that the same effects will follow the same practice all over the world, or even all over the district.

I have always taught that field experiments are most beneficial to those who make them, and that their published value is lamentably small, and chiefly consists in showing others the value of making trials for their own guidance, but not with a view of teaching farmers at a distance what manures to employ.

(1) The Italics are ours throughout. Ed.

(2) The soil close to the chalk rock. We know it we'll. Ed.

MANURING SCIENCE

indeed appears to have entered upon a phase in which it is much to be feared that it will part company with practice. Good old Doctor Vöelcker always preserved the harmony between the sisters, and, on the whole, preferred the dicta of the farmer to the doctrines of the professor. We have not advanced much in the art of crop growing, for a good crop forty years ago is a good crop still, neither more nor less. Seventy bushels of wheat is certainly a fad from phosphates, but facts are facts, and are not to be denied. On the whole, 40, 50, or 60 bushels of wheat, which were the measures for moderate and excessive fertility adopted by John Bravinder forty years since in his essay on fertility, still hold good. The pivot of 30 bushels per acre for average national wheat production still holds good, despite the falling out of cultivation of the worst land. We cannot, therefore, boast of any striking result from the application of modern methods. The great landmarks in land improvement have been drainage, cake, feeding, artificial manures, and steam. We have now entered upon a new epoch, which called forth a protest last week under the heading

PARADOXICAL SCIENCE.

with which I thoroughly agree.

Still more astonishing are the American results, described on page 184, with regard to inoculation of the soil with nitragin. I thought this latest fad was dead and buried, but the Alabama Experiment Station, in true Yankee fashion, takes the bun. "The uninoculated plot yielded 900 lb. of green forage, which produced 232 lb. of dried hay; while the inoculated plot yielded 9,136 lb. of green forage, producing 2,540 lb. of dried hay." No such effects have followed the use of nitragin in this country, and it is difficult to see why in a field already charged with the necessary bacteria any great result should follow an addition of the same. Reports of this nature from America should be received with the utmost caution and scepticism. Results are obtainable by means which, if not unfair, are definitely worked for. By selecting a special plant, by sterilisation of the soil, by arranging the standard plot so as to place it at a real practical disadvantage, and by other means, results may be obtained. The farmer, however, does not wish to show a ridiculously small yield against an extraordinary ten-fold one.

What he wishes to arrive at is the variation in yield within the limits of good farming.

JOHN WRIGHTSON. (1)

The Grazier and Breeder.

ON BREEDING.

(BY THE EDITOR.)

(Continued).

Now, the principles of breeding are no longer veiled in mystery, but, from the constant inquiry to which they have been subjected, and from the very high attainments of those gentlemen by whom those inquiries have been conducted, a flood of light has been thrown on the question, and rules have been laid down for the guidance of breeders which, when faithfully followed out, will invariably prove satisfactory.

It seems, then, that the organs and functions of the animal structure are divisible into three great classes, the *locomotive*, the *vital*, and the *mental*. (2)

The locomotive organs are the bones; the ligaments; the muscles. These are connected with the nerves of motion which arise from the *cerebellum*, the back part of the head. The shape, the limbs, and the skin, belong to this class.

The vital organs are the organs of absorption, as the lymphatics; of circulation, as the arteries, veins; the organs of secretion, as the glands. These are connected with the sympathetic nerves, which spring from the *cerebrum*, the fore part of the head. The digestive, respiratory, and reproductive organs, with the fat, milk, and other animal products, belong to this class.

The mental organs: the eye, the ears; the organs of perception, and the organs of volition. The functions of the first are to receive impressions from without; of the second, to perceive, compare, reflect; of the third to will, and, consequently, to throw the muscles into action to fulfil its purpose.

Now, the grand purpose of these inquiries is to determine whether or not one parent, or both indiscriminately, impart their organisation to their

offspring. And it is to this point that, in spite of its want of attractiveness, we should turn our earnest attention, for it is owing to the indifference with which it has been so long regarded that breeding has been so uncertain an undertaking.

Men of science, after innumerable experiments, have decided that one class of organs is propagated by the male, and another by the female. The whole law may be summarised thus; the dam gives the whole of the nutritive organs, and the sire the whole of the locomotive organs. The thinking organs come in *equal* and *distinct* portions from both parents.

Following out, then, to its fullest limit this doctrine, we see that, if we desire to produce any part of the locomotive organisation in our stock, we shall look for it in vain from the female; if, on the other hand we seek to improve the nutritive system, we should look for it in vain from the male; that is, in simple terms, if we desire, in cattle for instance, an improvement in the shape, we must look to the bull for it, if we want increased production of milk, or increased tendency to fatten, we must look to the cow. So, in breeding sheep, it is the ram who gives the wool, the ewe who gives the tendency to fatten and the increased production of milk.

When we consider that both parents have a share, a distinct and positive share, in the mental organs, it will not be difficult to see why, after a long and injudicious course of in-and-in breeding, all desire seems to be wanting in the male. Suppose the case of a bull breeding with his daughter and again with his granddaughter. Now, he gives, let us say, the anterior organs to his daughter, thus the two animals become, so far, identical; but, in breeding with his daughter, he may give his posterior organs to his granddaughter; and, as the granddaughter will thus bear both his series of organs—the former from the mother, the latter from himself—it is evident that, as regards these organs, the two are perfectly identical, and the identity of the mental organs destroys all desire for reproduction, the differences which are essential to excitement having no existence. (1).

But, although some of our early improvers were, as we have said, obliged, from the nature of the case, to tread a dangerous path, this is no longer the practice of our great breeders. They all have lines of blood, families, of relations it is

(1) In spite of Mr. Wrightson being Principal of an Agricultural College, he is a thoroughly practical man. Voelcker was chemist to the Royal Ag. Society of England. Ed.

(2) Walker's Physiology.

(1) Walker On Intermarriage.

true, but sufficiently far removed to be matched without fear of the consequences. And it is fortunate for all of us that it is so, for in no other way could the improvement made of late years by *crossing* have been carried out. The effect of adhering tenaciously to a particular family, or line of blood, has been to confer on the male a peculiarly impressive power, by which his form and substance are transmitted to his offspring, the dam contributing, apparently, nothing towards it. In no breed is this so marked a quality as in Shorthorns, probably because in no other case has so much pains been taken to preserve the lines of blood pure and intact. We saw at the Hon. M. H. Cochrane's, a few years ago, a calf, by Royal Commander out of a Kyle heifer, that disowned, in every thing but the jolly ruggedness of his roan coat, the very mother who bore him! Hence it is that four crosses of Shorthorn blood are considered enough to admit the produce to Herd-book honours.

Mr. Booth's Isabella, who was considered by Mr. Berry to be the perfection of a Shorthorn, had only three crosses in her when she and Moss Rose were backed against all the Herefords in England, as a test of the relative excellence of the two sorts. And herein is great encouragement to our farmers. Why cannot a few neighbours club together and buy a purebred bull,—Shorthorn, Devon, or Ayrshire, it does not signify what may be their fancy, so long as the animal purchased is purebred, and sprung from a carefully maintained herd. We should not dream of recommending our French Canadian farmers to attempt to improve their cattle by crossing with the Shorthorn,—any one who has seen the herds of cows leaving the neighbourhood of St. Hyacinthe in the spring will guess why—but the introduction of an Ayrshire, or Devon bull, would work wonders there. But then we fear as our poor friend W. Carr used to say with all the bitterness his gentle nature was capable of feeling: "It is difficult enough to convince those who have used, and benefited by the use of a high bred sire, of the expediency of continuing in the same course.

"Some wretched cross-bred cow put to the "pedigree bull" probably produces a bull-calf like its sire. This is shown at some local shows and wins a prize or two, thus becoming, in his owner's estimation, endowed with every necessary qualification for being a sire. He is then used on his owner's cows as well as on those of his owner's

neighbours. The result of this step is soon seen. Interesting traits of the maternal ancestry of the *parvenu* bull reappear in his progeny—the brindle, it may be of Pat. O'Flanagan's Kerry, the black nose and horns of Sandy Macpherson's Kyle, or the long legs and flat sides of Taffy Owen's Glamorgan"

No, it is not the introduction of one bull that will cure the defects of a whole parish of "runts" that when *fat*, as they are said to be, will die in many a case 280 lbs. to 300 lbs. of carcass. The improvement must be kept up for years by the constant introduction of pure blood.

McMURRAY ON COWS.

Allow me also to say a word about cows; others have told you how to feed them, and how to produce cheap milk. I also advise you to take good care of your cows, to feed them well, and I almost dare to beseech you to pay as much attention to your milch-cow as to your wife; that is a good deal, as you see. Not only does the cow yield products of the highest class, from which we draw more than twenty millions of dollars yearly, by our exports of butter and cheese, but how many pleasant things does she bring into the household! There you see a poor sufferer, whom the physician despairs of saving; he has exhausted all the resources of his art, and when he can place no more confidence in anything, he says: let us try to get him to drink milk. See the mother who is at the point of death, leaving a poor little new born child; who will care for this weakling, with what shall it be fed? With the pleasant milk of the gentle cow, is the reply. The cow is a true benefactress; she is almost a mother to us in our babyhood: let us take the greatest care of so good a being.

Your cowhouses must be well lighted, well ventilated. Tie up your cows in such a way that they can scratch themselves in the stall, and rub their necks. Let them always have clean water before them, and let it be of the same temperature as the cowhouse.

Feed them well and with a variety of foods. Do you think that a cow is likely to give you a fine calf if, during pregnancy, she has only dry straw to eat, and if she has to get her drink through a hole cut in the ice? You will not have herds of fine calves and cows if you treat them thus.

If you want to know what is the best kind of cow for you to keep, I will tell you frankly : it is the cow you already have on your farms, the good little Canadian cow. One great fault in our farmers is that they only keep a yearling bull to get their stock. I advise you to keep a good strong bull, one able to transmit his good points. Make your cows calve late, that is not before they are 30 months old, for, before that age, unless they are especially well fed, they injure themselves by being in calf : they are too weak to stand it. The mother gives the milking qualities, the sire the form and colour. If we put our big cows to a Canadian bull, he will very probably get a calf that will turn out a good milker, but just as probably, it will be nothing of the sort. The Canadian cows always give good milkers. Let us remember that, for richness of milk, our Canadian has never been beaten. You are never to put your cows to any but a good bull ; he should be well fed, so that he may be strong and active in service? without activity, you will not succeed.

I thank you, Gentlemen, for the attention you have paid to my observations, and I invite you all to visit the Ottawa Experiment-farm : you will be received there with open arms. (Applause.)

DISCUSSION.

Q.—In the crossings of the different breeds you have at Ottawa, have you tried the cross between Canadian and Jersey?

R.—Yes.

Q.—How did it turn out?

R.—The Jersey and our Canadian are almost alike, except that the Jersey is rather more black. We have crosses of the two breeds at the Farm, and they cannot be distinguished one from the other. The milk is as rich, and I think the crossing has increased the yield. Nothing but good can come from this cross. (1)

EXHIBITING AND JUDGING LIVE STOCK

Now that the smoke of the battle has cleared away and the strife in the show ring for 1899 is over, it may be well to enter into the retrospective a little and find out just where we are at. The contests in nearly all classes of live stock at this year's shows have been very keenly contested, more so than for several years back, especially

(1) But we see, by the papers, that the Breeders' Society of Quebec want all prizes for this cross to be done away with. Ed.

in the cattle, sheep, and swine classes. So much so has this been the case that the most despicable practices have been resorted to, in a couple of instances, in order to gain favor in the prize ring. And, indeed, we may well ask : "Where are we at?"

The contemptible action of the manager of the Miller & Sibley herd, and apparently of those in charge of the herd of a prominent Canadian breeder, in forcing back the milk into the udders of their Jersey cows before taking them before the judges at the Toronto Fair cannot be too strongly condemned. When exhibitors at any show resort to such practices they should be prohibited from ever entering a show ring—at least until they have learned that honesty in the show ring is just as necessary and is as much looked for as in any business transaction.

The action of the Industrial Fair Board, as reported in the last week's *Farming*, in withholding the prize money won by the Miller & Sibley herd and in restraining them from exhibiting at the Industrial Fair for one year, will be generally commended. But what seems strange is that no punishment has been meted out to the other breeder implicated. Those responsible for the action referred to in this case were either innocent or guilty. If the latter, why was not the same punishment meted out to the Canadian firm as to the American firm, whose manager admitted the wrong-doing? If the Canadian breeder was totally innocent of the charge made against him it is only fair to himself and to the public that the fact should be made known.

It is somewhat strange how this affair is developing. In a letter to the president of the Industrial Fair Association made public last week Messrs. Miller & Sibley state that they were greatly shocked on learning that one of their employees had resorted to the practice already referred to, and would forego all prize money, honors and success unless they were justly entitled to them. While we have no desire to question their sincerity in this matter, yet it seems strange that they should have as the manager of their large and valuable herd a person who would stoop to such methods. Their manager is not a novice in the business of managing a Jersey herd, and it is hardly reasonable to suppose that his visit to the Industrial Fair a few weeks ago was the first time when milk had been forced back into the udders of their cows before taking them into the show ring — *Farming*.

Swine.

ADDRESS BY MR. J. A. McMURRAY

Of the Ottawa Experiment-Farm.

(From the French).

(Continued).

You will find it a good plan to have your sows farrow at the beginning of March or in April, so that the little ones can be weaned at the beginning or in the middle of May. Then they can eat grass, and the cows having calved, you can give them skim milk and bran. Never give your young pigs raw potatoes, they are almost poisonous for them. Cook both potatoes and roots (1) for them, and keep the water in which they have been boiled to make a mash with some oatmeal. Never give them swedes, as they are too hard, and not rich food at all.

And now give them all the grass they will eat. The little ones should have every chance to learn to root; they should not be ringed at first. Put them up to fat at 5 months old, and at 7 or 8 they will be fit to kill, when they ought to weigh hard upon 200 lbs. If you fatten them in the open air, that is all right; they will do well, too, on boards. If you tell me there is such a thing as the foot-disease, I shall contradict you. It is you yourselves that give them that complaint. When they are kept on boards, they must have rich food, composed of a mixture of grain of different kinds. Given them all that cannot be sold; ground or not, but preferably ground.

Now, I am going to give you a sketch of the experiments being made at present at the Farm on the fattening of pigs. We have eleven sties, in each of which are 4 pigs; the sties are six to eight feet square. They are on boards, as they are here, but the boards are a little on the slope. The trough for food is in 4 compartments, so as to admit the head of only one pig at once. Being thus separated, they are all fed alike, and cannot dirty the food with their feet. The experiments that we are now making are for the purpose of finding the way to make the bacon best suited to the English market; not so much to find how to

(1) Cooking anything except potatoes is waste of fuel and labour. Ed.

make the greatest quantity of pork at the cheapest rate, as to see what sort of pork can be made from such a given sort of food. The pigs get clean water twice a day.

In the sty No. 1, the pigs get unground maize.

In No. 2, ground maize, soaked for 30 hours, is given to the pigs; just the reverse of the former, you see.

Those in No. 3 get ground maize, soaked for 30 hours, and skim-milk, instead of water.

The pigs in No. 4 have the following ration: half, ground corn, and half, an equal weight of pease, barley, and oats, all mixed and soaked for 30 hours; then, an addition of milk. Water is given freely in a separate trough. The grain and pulse added to the maize are not ground.

The pigs in No. 5 get the same as the preceding, only the grain and pulse are all ground.

Those in sty No. 6, the same food as those in 4 and 5, with 24 lbs of milk in addition.

The pigs in No. 7 are fed on a ration of pease, barley, and oats, unground, and mixed in equal quantities of each. This is given dry, with water separately.

Those in No. 8 have the same as the last, but the grain is ground, soaked for 30 hours, and given with lots of water.

You will perhaps ask me what difference it can make whether the grain is given mixed with water, or the water is given alone. If you will come to the Farm, I will show you the difference. The pigs that are given the grain dry, eat quietly; this takes a good deal of time, while eating, they masticate much more slowly; they have to leave off now and then to go to the trough to drink, so digestion goes on better. Their hair is fine, they are lively, good-humoured, they lark about. But those that get their food soaking, eat much more a day; they eat a pound a day more than the rest, and increase quite a pound less in weight. They are not so jolly after eating: they feel themselves overloaded.

The No. 9 pigs are fed like those in Nos. 7 and 8, plus 24 lbs. of skim-milk and lots of water.

Those in No. 10 are fed on the following ration: half bran, and half a mixture of pease, barley, and oats, all ground up, soaked for 30 hours, and given in plenty of water.

Lastly, the pigs in sty 11 are fed in the same way as those in No. 10, with the addition of one-fifth of chaffed clover soaked in plenty of water. The clover thus added to the ration gives a good

return and is a saving. Clover is good for your pigs; it is also good for the health of stock in general.

You perceive then that the experiments we are making at the Farm on the feeding of pigs are numerous. You cannot remember all that I have been telling you, but you can ask for our report, and therein you will find a full account of all the experiments now in operation.

Keep your pigs shut-up; give them good food, and keep them always clean. Don't give them, on any account, too stale milk that is putried in the barrel; that is as good as poison to them.

Dr. Grignon—Do you recommend giving salt to pigs?

Mr. McMurray—Pig's food should never be salted. Swine need salt, but only in this way: if they are out in the field, they do not want it; they only take salt as a purge, and in the fields they can do without it. But if they are in the sty, give them coal and ashes, put in a corner for them, with a handful of salt thrown in from time to time. When the pigs feel that they need salt, they will go and get it. They digest their food better if they have salt, but they must be allowed to get it when they feel a desire for it.

Now, how are pigs to be fed?

If you have roots for them, cook them; make a sort of soup of them. Don't give your pigs their food in a trough in which remains some of the preceding meal. Don't feed them too lavishly; it is better that they should cry out for food than leave any. When you begin to fatten them, they will gain faster than towards the end; but take care not to make them sick; don't give them more than their stomach can assimilate. The moment you give your hogs too much to eat, they will have the foot-disease; and it is you that will have given it to them. The appetite leaves them, and it will be a week before it returns; you will have lost a week of the fattening, and your pigs will have been eating just the same. Feed three or four times a day, but in small quantities.

Now as to cleanliness. Even in winter, let your swine have clean water to drink. The stomach being full of food they utilise water to aid digestion, and are continually in want of water.

And by no means allow them to be cold; with all this attention your pigs will never be ill.

When you want to have a good sow, look well to the number of her teats. Never take one with

only eight, but choose one with from ten to fourteen. If a sow has fourteen teats, she will give you ten, twelve, and even fourteen little ones. Select a sow that looks like a milker; lengthy, and with a belly that does not show as if hollow. (1.) If the belly of the sow looks "tucked-up," she will never make a good nurse, and the young ones will take after their dam.

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

ILLUSTRATION.

The illustration was sent me from England, by my little friend who used to do them for me, to be put in the JOURNAL. As it is her own designing, it must be of the very latest style of dress worn.

This is a tailor made costume, and, as can easily be seen, is quite tight fitting, as all tailor-made suits are. It is a most becoming dress to those who have the figure to carry it off well.

It will serve to show what can be done by attention to the smallest details in its making, which must be most carefully carried out; a slight curve in the wrong place would spoil the whole costume. Thus, it rejoices the heart of the tailor to get a good model to work upon, because he will then feel secure that his work will be seen to be perfect in the end.

I have seen during the last week a very pretty costume made at home for a young girl of 15, made after the same style, and although most troublesome to fit and get into shape, it turned out, in the end, a most perfect garment.

This is the best use one can make of these illustrations, to look over and pick out from them the part suitable to the wants of the person, and thus get a fashionable dress at a small cost.

Owing to the tight-fitting sleeve now in fashion, there is scant room for anything but a sleeveless waist under the jacket.

This will necessitate a warm cape on cold days.

There is a number of capes for this purpose, some of which are lined with fur and have high collars. They reach about down to the waist-line and are perfect for this season of the year, as they

(1.) This phrase, I take to mean, "whose belly does not look tucked up," as we say of a horse. A. R. J. F.

give thorough freedom in walking, can easily be taken off in doors, and still leave the wearer in calling costume.

The hair is done in Pompadour style; a most becoming style to some faces, but most trying to those to whom it is unsuitable.



The hat must be one suitable to the hair, as it must sit nicely down on it.

The hair done in this way adds considerably to the apparent height of the wearer, so the hat must be somewhat after the style of the illustration.

TOMATO SAUCE.

Take 10 lbs. of ripe tomatoes, and to this amount of fruit allow one pint of the best brown

vinegar, $\frac{1}{2}$ lb. of white sugar, 2 oz. of salt, 1 oz. of garlic, 1 oz. of allspice, $\frac{1}{2}$ oz. of black pepper, $\frac{1}{2}$ oz. cloves, and a $\frac{1}{2}$ oz. of cayenne pepper. Wipe the tomatoes clean and bake them in the oven till they are soft enough to be rubbed through a sieve that will retain the seeds and skins. Boil the juice so obtained for one hour, then add the other ingredients. All the spices must be ground, and the garlic peeled and pounded to pulp. Now boil the whole, and constantly stir till you get a thick, smooth mass, free from watery particles; it will take about five hours' boiling. If you prefer the sauce to have a bright color, as many people do, add to the natural tint a little prepared cochineal. This is one of the best keeping sauces of the many tomato sauces made. It is to be bottled without further straining. The bottles must be absolutely dry when the sauce is put in them. When cold, cork securely, and seal or resin over the corks.

GRAPE JAM.

Use an enamelled saucepan or a bright copper pan, and stir when boiling with a wooden or silver spoon. This preserve may be made with either ripe or unripe grapes. The unripe, if full grown, are often considered the best to use. Carefully pick the grapes from the stalks, rejecting any in the least spotted or decayed. To every pound of fruit allow 1 lb. of sugar. Wash the grapes in water when you have taken them from the stalks. This not only removes dust or smoky smuts, but provides just enough dampness to melt the sugar. Allow no more water than what hangs about the fruit after the washing. Into the preserving pan first put a layer of grapes, then a pound of roughly-pounded loaf sugar, then a layer of grapes, and so on till all are in the pan. Some allow them to stand thus for an hour or two till the moisture begins to melt the sugar well. Boil on a moderate fire, stirring all the time to prevent burning, which will certainly occur and spoil the batch unless you are careful. By and by, as the berries break and the grape stones rise to the top, take them out with the spoon, so that by the time the fruit is sufficiently boiled the stones will have all been thrown up by the prolonged boiling and carefully removed. Crock as usual in dry crocks, covering them next day. Grape jelly can also be made from unripe fully-grown grapes, and is a very charming dessert dish.

ADVICE FOR THE AGED.

Respecting the personal care of the body in the case of those who have reached advanced age, Dr. Parkes in his work, "The Personal Care of Health," gives the following hints, which he states are generally applicable to both sexes. "An old man's meals should not be too far apart, but he should take little each time. The attempt to feed up old people by frequent and large meals is hardly ever successful, and sometimes dangerous. Rice, eggs, milk, bread, also fruits fresh and dry, as the latter have a rather laxative effect, which is beneficial, are appropriate foods for the very old. If there is any tendency to gravel, meat should be given up altogether."

An old man's food should be most carefully cooked, every fibre should be as soft as possible, as there is little mastication even with artificial teeth. So, also, the diet should not be suddenly much altered in any way, either in amount or kind. There is not much power of accommodation in old age. A curious question arises with reference to advanced age, viz., over seventy. Is it well to limit the amount of liquid drink? The reason for this question is, that in old men both skin and kidneys act less perfectly, and water less easily passes through them. If much water is taken it is not easily got rid of. I believe, in fact, that it is really desirable not to take a very large quantity of liquid, but yet not to limit it, if there is a wish for it. No theories of ours are of value against an indication of nature.

It was said by Galen, and the question is still undecided, that milk does not suit some old men; if so, it may be the amount of water in milk is so large, and they do not get rid of it, while in the young the water-pouring-out organs are so active as to make it necessary to supply much water. Spirits, I believe, are hurtful even when largely diluted; and I question whether beer, or at any rate the stronger ales, suit an old man's digestion. After the age of sixty, any idea of hardihood, and of facing weather must be laid aside, neither the skin nor the lungs bear cold: cold is, in fact, the great enemy of old people; and if a man of sixty or sixty-five goes to a warmer climate than that to which he has been accustomed, his life is prolonged. Warm flannel clothes should be worn next the skin day and night, and there should be

plenty of winter garments. Rooms also must be kept warm, and in very old people even drinks should be taken warm, as the sources of animal heat are being dried up.

ALL ARE NOT ALIKE.

Every man has his own constitution and the system of dieting or plan of living most beneficial to one person may be injurious to another. This law applies to young and old, and while much may be learned from the experience of others, yet it is necessary for each person to study his own constitution in order to determine what it requires to ensure health. People in general are too ready to assume that because a certain method of dieting has benefited them, all their friends should follow their example. On the other hand those who have never had occasion to diet themselves are inclined to regard anyone who carefully selects his food as peculiar or cranky. There are, of course, certain general laws of health which are applicable in all cases, but a great deal of latitude must be allowed owing to differences in constitutions.

The Garden and Orchard.

(CONDUCTED BY MR. GEO. MOORE).

QUEBEC COUNTY FAIR.

The annual fair of the Quebec County Agricultural Association was held, in the Savard Park, on Tuesday, September 27th, and proved to be a great success. The weather, which had been showery for the previous fortnight, cleared up as if for the occasion, and the day was one of those beautiful, clear, sunny ones which characterize the autumn of the year in this climate.

It was a pleasing sight to see the country people driving in and greeting each other, showing by their happy looks that they were on pleasure bent, and that it was the legitimate exhibition of farm produce that they came to see and not any disreputable side-shows, which were conspicuous by their absence. There was an air of respectability and of interest being taken in the proceedings, which, to those who had the real object of such gatherings at heart, namely the benefits they should bring to all classes of the community, must have been very gratifying.

The directors had done all they could to make the competition fair ; no person was allowed to be near the judges while they were making their awards, and the rule which insists upon the specimens being the property and growth of the exhibitor was strictly enforced.

The cattle were not numerous, although, for a county show, they were there in considerable numbers, and showed a marked improvement over those of past years, proving that the farmers have woken up to the necessity of keeping pure or well-graded breeds. Swine, too, were well represented and those gaining the premiums, as well as some which did not, were well bred and well fed animals which would have held their own in any show. It is gratifying to remark that sheep also claimed the attention of the judges and directors. Sheep, as a rule, have been neglected in this part of this Province, but an enterprising farmer of Valcartier, Mr. Geo. Thompson, with a praiseworthy desire to help to improve the sheep of the county, has imported a duly registered Shropshire ram which he exhibited, and, together with some of his progeny, took prizes for. This gentleman is worthy of special notice for his public spirit and the example he sets to his neighbours, because the land in his part of the county is peculiarly adapted to sheep, (1) and by them the profits and fertility of the farms might be greatly increased.

The quality of the vegetables on exhibition was remarkable ; potatoes were on hand in abundance and of the finest quality.

There is room but for little criticism on the part of the directors, but the opinion may be expressed that if the potatoes were classified, say, white and red kidney-shaped or "Early-rose" type, and white and red round, two or three prizes in each class, it would be more satisfactory than giving a long series of prizes for all varieties ; because it is difficult to compare them with each other, many deserving baskets get no prize. The whole display of esculent roots and plants was simply excellent. Onions of enormous size and soundness, carrots long and short, swedes, for which Quebec is celebrated, and beets long and round with skins as smooth as could be imagined ; mangels of very large size and smoothness, cabbages, large and solid, and celery well blanched and large, made up a

collection of well grown specimens seldom excelled, and which was sufficient to stamp the County of Quebec as one in which vegetables of the hardy and most useful kinds can be, and are, produced in perfection.

The management is to be commended for the success of the show ; it was, what all such should be, a meeting for friendly competition, comparison, and interchange of ideas ; there was no rowdyism or drunkenness, and the spectators returned to their homes well pleased with the remembrance of a pleasant and profitably spent holiday.

There were some trotting matches between the horses of the young farmers which afforded excellent sport ; but they were conducted with fairness as far as the management was concerned, and there was none of the jockeying and trickery allowed which disgrace race courses of greater pretensions.

THE ROOT-HOUSE.

At this season the root-house must claim a share of attention, it should be perfectly clean and sweet, and any appearance of mildew banished. A dressing, or spraying, of the floor, walls, and roof before the roots are put in would kill the germs of all incipient fungi and the decay of vegetables are attributable to this cause. It is important that roots should be as dry as possible when deposited in the root-house, and be handled as carefully as possible. A fine day in winter should not be lost in the opportunity it will give to admit the air.

EVERGREENS.

Trees which do not shed their foliage annually are called "Evergreens." Nearly all the evergreens which will bear the rigor of this climate are coniferous ; those with broad leaves, with few exceptions, are not sufficiently hardy. In landscape gardening, they are not so much used as in Europe, where the broad and shining leaves of the laurel, the rhododendron, and the bay, form beautiful contrasts with the pyramidal forms and needle-like foliage of the pine, the spruce, and the cedar.

Nevertheless, a pleasure-ground is not a complete picture without some evergreens, even if they are only conifers. The common American arbor

(1) And rape too. Ed.

Vitæ, when planted singly, make a striking object, and the Siberian, equally hardy, a still more compact pyramid of darker green. The Balsam fir grows into a beautiful mass of verdure very rapidly. The white pine, with its long, delicate needles, forms a striking contrast of growth and color with these, and the different varieties of the white or native spruce, and the Norway spruce are all elegant, the latter being of lofty, rapid growth, and of pyramidal form, is the most beautiful. The Canadian species, *Abies Canadensis*, has a feathery and graceful habit of growth if left alone, and can made to assume various shapes by annual clippings.

These trees can all be planted in single specimens on the lawn, or in groups so arranged as to contrast and harmonize in form and color. The strong-growing firs and spruces are well adapted by their vigorous and rapid growth, density of foliage, and hardiness, for wind-breaks: a part of planting and arrangement of a garden which in this climate should never be lost sight of.

One great advantage the conifers possess, is that they will thrive in dry soils and even in places where the humus is too thin for other evergreens, they require very little fertilizing material; no fresh manure should be applied to the roots, and, if at all, only as a slight mulching in the fall, to be cleared off in the early part of the summer. Coniferous trees should be frequently transplanted so that they will be well provided with fibrous roots; exposure to the air of these delicate fibres in the process of their removal is injurious if not fatal, but with due care they can be removed with certainty of success.

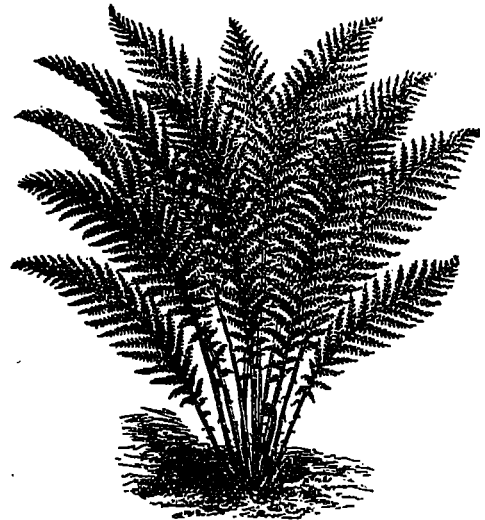
HARDY FERNS.

A great deal may be done to embellish the pleasure-ground by the introduction of the hardy ferns. There are some places, where, by reason of too much shade or moisture, other plants will not thrive, and, again, there are rocky spots which might be rendered beautiful by planting certain species of ferns in the fissures. If the right kinds are chosen, they will enjoy the fierce rays of the sun and the dryness which would be death to others.

One of the most familiar of the hardy ferns is the "maiden hair," *adiantum-pedatum*; its beautifully cut fronds, poised upon the slender

black stem, make it the choicest of all the hardy ferns. It grows only about eighteen inches high, is of compact, dense habit, and requires partial shade and a moist but well drained situation.

The *Aspidia* are all very graceful and elegant, very much varied in the form and color of their fronds, some being simply divided and others feathery and cristate. With the exception of the Christmas and Holy ferns, they are adapted for culture in the open border, the two latter preferring partial shade.



Hardy fern, *Aspidium* species.

The Spleenworts, *Asplenium*, of which the Lady fern, *A. filix fœminae*, is the most elegant, will grow well in the open border, although the common Spleenwort requires to be shaded from the sun.

The "walking fern," so called from its curious habit of taking root at the points of its fronds which droop over until they touch the ground, requires a well-drained shady situation. One of the most distinct species for shady places is the Lace fern, the fronds of which are so minutely divided as to make them resemble fine lace, while the "gossamer fern," somewhat similar in delicacy of foliage, thrives best in the full sun.

The "rock brake," can be planted in the fissures of rocks in the full sunshine. The cliff-brake is scarce, and will also grow in the rock fissures, but like the *Polypodia*, requires shade. For fine effect in the shrubbery, the best to plant is the Royal fern, *Osmunda regalis*; it should be planted on somewhat moist garden-soil, when it will send up a dense mass of its fruitful and

barren fronds three to four feet high, and form a splendid contrast with its surroundings.

It is worth while to study the habits of the hardy ferns, so that we may use them to complete the ornamentation of spaces which might be eyesores. Many of the species are evergreen, and their foliage is very useful for indoor, winter, or Christmas decorations. The small fronds of the *Scolopendrinus* and *Polypodia* are gathered in the New England States, tied into large bunches and sold in great quantities by the Boston florists.

HARDY PERENNIAL.

Rudbeckia (cone-flower), is so named from the centre of the flower, which rises in a deep purple cone surrounded by bright yellow petals, which with it contrast beautifully. The American variety *R. speciosa* is the most showy and distinct, and although it is occasionally found by the roadside or in pasture or corn field, where it is a weed, although not a very troublesome one because it does not increase as rapidly as some, it is well worthy a place in the herbaceous plant border where it will make a brilliant display of dazzling, deep yellow blossoms during the latter summer. Its stems are sufficiently strong to support themselves and no staking is necessary. It is one of



Rudbeckia speciosa.

the easiest plants to cultivate, thriving in any common garden soil. The flowers, when cut, remain fresh for a long time and are valuable for house decoration where masses of color are required. In many respects the *Rudbeckias* are the most satisfactory of any of the hardy perennials. There are many sub-varieties, the best of which are *laciniata* which is tall-growing with lemon colored flowers, *maxima*, largest of all, bright

yellow, *sub-tomentosa* brilliant lemon : pyramidal habit of growth, and *chrysomella*, rich golden yellow.

PRODUCE OF A ONE ACRE GARDEN.

A number of years ago, the Revd T. Shaw Chapman, of Marbleton, P. Q., retired from the ministry of the Anglican Church in consequence of ill-health and amused himself with some scientific pursuits among which was the care and management of one acre of land as a fruit and vegetable garden. The place was admirably adapted for the purpose, a gentle slope of upland maple soil, of good uniform quality. He planted a portion of this with apple trees at such a distance apart as to allow of cultivation of the land between the trees; he also planted a few of the best varieties of plums.

Some few years since, I had the pleasure of visiting Mr. Chapman and, seeing the possibilities of his work, I wrote to ask him to favor me with an account of the produce of his garden; he kindly replied as follows :

75 bushels apples ;
 25 " red plums ;
 7 " black currants ;
 5 " red and white currants ;
 125 " swedes ;
 50 " potatoes ;
 50 " carrots ;
 5 " blood-beets ;
 5 " parsnips ;

50 cauliflowers ;
 30 water melons ;
 300 heads of celery ;
 2 bushels Indian corn ;

Lettuce, radishes and pease enough for the family's use.

About 12 loads of well rotted manure and 25 bushels of ashes are applied annually. Cultivation is chiefly by horse power.

Mr. Chapman adds: What has been done can be done again, and again. (1) It is folly for any one to say that there are no profits or pleasure in gardening !

(1) Depends entirely on the man who tries to do it. En.



The Poultry-Yard.

(CONDUCTED BY S. J. ANDRES).

PRACTICAL POULTRY KEEPING.

Realizing that the word poultry is applicable to both land and water fowl, I would start this article by saying that chickens only will be considered.

As a machinist, before commencing a piece of work sees first that his tools are in proper condition, so also must the fancier or farmer be certain that his location, his buildings and yards, and his other qualifications are fitted for the work in question, else he cannot hope to attain to the best possible results.

The idea seems to prevail that anything is good enough for the hens; and how often we find a corner of the backyard fenced up with lath, and some dry goods box or old piano box, or tumble down shed doing duty as a henhouse. Here you will often find from four to six times the proper number of birds, the house full of cracks, often with no windows or means of lighting save what strays through roof and knot holes, probably a year's accumulation of droppings upon the floor, dark, damp, filthy and lousy. It is also the rule, rather than the exception, that such death traps as these are found on the lowest spot of ground in the immediate neighborhood; and in consequence, whenever there is any water anywhere, it may be found in both coop and yard.

There is but one redeeming feature in such hovels, they seldom lack ventilation. No grass ever grows in such a yard nor do the birds get grit or oyster shell. A variety of food and green food is unknown to them; their bill of fare is usually two-thirds corn and the other third—corn. This is a pen picture of about nine-tenths of the quarters of the city or town flock, and that of the farmer usually differs only in the fact that his fowls have the run of the farm, roost in the trees when vermin drives them from their accustomed places, and by reason of their liberty, they manage to secure a more varied diet than their town relatives. His hens, when they do lay, hunt out some secluded nook in the barn or fence corner, under bushes, etc., and nesting places are easily found by the hen, but they necessitate a daily search by the farmer or his wife and seldom, if

ever, are all the eggs found. Is it any wonder that hens seldom lay under such conditions, or that lice and disease carry off vast numbers annually?

It would seem that anyone of even ordinary foresightedness would know better than to undertake the keeping of poultry in such places as these, and yet they have every excuse to offer for such neglect, and notwithstanding, they wonder why their poultry does not pay. Now, poultry, kept on practical lines, in and under proper condition, will pay, in proportion to the care given and experience in management, feeding and mating; such experience can be gained only from painstaking work with the stock and careful study of the results desired and to be attained.

IMPROVED STOCK BRINGS BETTER RESULTS.

We see very many descriptions in the prints of the present day of expensive poultry establishments, some that have already been built and others in course of construction. That these plants are increasing there is no doubt. Poultry culture is surely appealing to many persons and a great deal of money is being expended in those new ventures. When each building season comes around we learn of new plans for poultry houses. Compare if you will the modern poultry farm of to-day with that of a few years ago. What a difference, what great improvements have been made? How much better hens are cared for now than they were even ten years ago? Are we justified in all these improvements and do we obtain results to warrant the expenditure of so much money?

First let us look at the egg yield and cost of production. Before modern improvements were undertaken, small flocks of hens were kept by nearly all farmers and left to earn a living as best they could. The feed bill was very small and the egg yield probably in proportion to the expense of care and feed.

Common hens were the rule and thoroughbreds the exception. A yield of eighty or ninety eggs per hen a year, and this mostly after January 1st, was considered good enough and very little effort was made to increase it. Prices ruled fairly good however and the profits were quite satisfactory. The effort to induce the farmer to improve his flock has been an uphill fight and has met with

much opposition. The argument was always "fancy fowls cost too much and require too much care." The farmer was only half wrong in this idea and, until he could be shown better results, held out against any improvement.

Gradually however a few progressive men in all parts of our country made efforts and were induced to introduce better blood into their common flocks and at last many have discarded the old dunghills and replaced them with thorough-breds. The eggs yield has been increased from the old figures to one hundred and twenty-five and one hundred and fifty eggs per year and special flocks now show even better results, and if care were taken to trace and investigate this improvement it would be found that the modern plants coupled with the exhibitions which are now held in the large cities of Dominion, notably in Montreal, Toronto, Quebec with the hard work of the officers of the Poultry Association backed up by the generous aid of both Dominion and Provincial Ministers of Agriculture, will have had much to do the present condition of times, still there is a room for more and greater improvements. In localities where these efforts have been made, the farmers have found opportunities of procuring better eggs for hatching and have seen with their own eggs, which was the most convincing argument to them, the advantages of better stock and better equipment. This is very noticeable in the Western Province of Ontario as well as in our own Province of Quebec.

GRADING UP THE FLOCKS.

When you desire to grade the flock up to a higher point of excellence such work should be done by a careful and judicious selection of pure bred males. It is better to use both males and females pure bred but farmers, as a rule, prefer to procure males and cross on their hens. If farmers will use the best males, however, crossing would not be objectionable, but they often exchange males with some neighbor or accept as pure bred fowls some that are but grades, which does not effect any improvement. The best to be had is not too good when you desire to improve your stock.

S. J. ANDRES.

FATTENING POULTRY.

To the Editor of the JOURNAL OF AGRICULTURE.

Dear Sir,—I have seen several very able articles on poultry feeding and raising by S. J. Andres, in your paper recently; they are well worth a careful study by every one who pretends to keep a score of hens.

I agree with him, that hens if well cared for and fed properly, pay better than the same amount of capital in any other branch of farming. In the first place arrange with some good grocer in the city of Montreal to give him all your eggs fresh, do not keep them a month or two until the market rises, you can easily get at least 5 cents a dozen more for your eggs than the wholesale price the whole year through, and for 2 or 3 months, say November, December and January, you can easily get a good long price for them and you will not be able to supply the demand. I have heard farmers say that they would rather sell eggs at 10 cts. a dozen in summer than 25 cts. in winter, or rather they have more profit on the summer eggs than on the winter ones, but I would say that there is no need of selling eggs at ten cents. I got a market last summer for all the eggs I could spare at fifteen cents, and that only for a very short time, not more than two and a half months, then 20 cents and before Christmas I expect to get 35 to 40 cents a dozen.

As to fattening chickens, there is lots of money in it to those who fatten them properly. If you wish to raise all your own chicks, perhaps it would be better to get an incubator; if not, you can buy your chicks when wanted, there is almost an unlimited demand for well fattened poultry and at a good price. A firm is ready to buy all the well fattened poultry at Montreal, and pay 10 to 11 cts. a lb.; the former price for large chicks say over 4 pounds and the latter for smaller ones. The market is ready from the first of September, and even earlier, until the end of November. During that time, a thousand or more could be fattened easily. The Federal government has several illustration-stations in operation, and the first lot has been shipped by the Steamship Vancouver from Bondville, Que., to Liverpool.

This will be done until private enterprise takes it up, and learns how to do it properly. I have not seen what the cost of these chicks is this year, but last year they cost 6 cents a lb.; a profit of at least 4 cents, a good round sum; as the chicks

averaged over 5 lbs., a clear profit of 20 cents on each chick was made. I do not suppose I need go over the process of fattening again, as I did in a former article, only to say that the chicks must be shut up and fed on grain ground very fine and skim milk. They do well on this for about 15 to 18 days and then the forcing or stuffing process begins. The chicks must not get any food for at least 30 to 36 hours before killing, and be plucked when warm. The market is here right at our door. Just to show the enormous market, I quote a short article from the *Star* of yesterday.

"A single order for 350,000 pounds of dressed poultry, making fourteen car-loads, has just been received at St. Joseph, Mo., by a packing house from London, England. More than 100,000 chickens will be slaughtered this week in filling this order."

This same gentleman was here in Montreal, trying to make contracts for sufficient dressed poultry, but could not succeed, so had to go to Boston, Chicago, Kansas City, and St. Joseph, Mo. Now, why not begin at once, and make your preparations immediately. Choose the breed of fowls you like the best or have had good success with; get them into a good place for the winter, feed them properly, keep them free from vermin by providing a dust bath, ashes is the best that I know of; keep them in good health; provide them with material for making eggs; see to the market part of that, and by next year you will be in a position to commence fattening. I feel satisfied that, for people of small means, a market garden run in connection with the poultry-business, is a profitable investment.

So far the best breed has proved to be the Barred Plymouth Rocks, but, as I said previously, take the breed you have done the best with. Some objections were made in former years to chicks that had black feet and legs, (1) but that does not seem to be any objection now as long as they are well fattened.

Yours truly,

PETER MACFARLANE.

Chateauguay, 13th Oct. 1899.

(1) The English insist on fowls with white legs for boiling; they will take yellow legged fowls for roasting, but they do not like black legs for any purpose. Ed.

The Dairy.

RIPENING-ROOMS.

Notice.

Those proprietors of cheeseries who are anxious to improve their ripening-rooms, with the aid of the premium offered by the provincial government, must understand that the government now recommends only one system, that is, the one described in the bulletin of the Department of Agriculture, and that this is the only one for which a bonus will be granted in future.

The special characteristic of this plan, is the way in which the walls, the ceilings, and the floors are built, and to these points special attention should be paid; for upon the way in which they are constructed the success of the rooms depends.

With badly built walls, too much ice is consumed in reducing the temperature in hot weather.

If there are no ventilators or refrigerators, or if they are badly constructed, they can be supplied, or in the latter case improved; but walls that are not properly built are very costly to rectify.

COMPETITION OF DAIRY-PRODUCTS, HELD AT MONTREAL, SEPTEMBER and, 1899.

The second competition of dairy-products was held at Montreal, at the Union Cold Storage, on September 2nd.

The Judges were, for butter, Mr. A. A. Ayer, and Mr. Vaillancourt, exporters, and M. E. Bourbeau, Inspector of the syndicated cheeseries of the province, and teacher in the Dairy-school at St-Hyacinthe.

Prizes were awarded to:

Cheese.

Emile Lemay, St-Nicholas, Lévis, 97 marks, a silver-medal, a first-class diploma, and \$9.00.

E. A. Turcotte, Val Racine, Compton, 97 marks, a bronze-medal, a diploma of the second class, and \$1.00.

Adjutor Lepage, Garth Bay, Wolfe, 94 marks, a bronze-medal, a diploma of the second class, and \$3.00.

Arthur Baron, maker to MM. Déry and Beau-bien, St-Vincennes, Champlain, 96 marks, a bronze-medal, a second class diploma, and \$7.00.

Butter.

Jos. S. Bouchard, Ste-Angèle de Monnoir, Rouville, 96½ marks, a bronze-medal, a second class diploma, and \$8.00.

J. D. Morrison, Hatley, Stanstead, 96 marks, second class diploma, a bronze-medal, and \$7.00.

A. Safranque, Ste-Thérèse, Terrebonne, 93 marks, second class diploma, and \$1.00.

Pierre Bouchard, Brompton-Falls, Richmond, 93 marks, a bronze-medal, second class diploma, and \$1.00.

The chief faults found were, for the butter as well as the cheese, in the aroma, and faulty aroma proceeds rather from the milk furnished by the patrons being of bad quality than from errors in the making. All efforts towards improvement should now tend to the improvement of the quality of the milk.

This grows more and more certain daily, and it is desirable that makers should be more strict in the reception of the milk, and take measures to instruct the patrons how to take proper care of their milk.

Many instances were presented of sweet butter being shown in boxes, while heavily salted butters were exhibited in tubs: it should be just the reverse; as tub-butters are meant for the local market and butter in boxes for export.

Some cheeses were not firm enough, and we are bound to say that makers should make a practice of scalding their cheese to a higher temperature: 104° to 108°.

The packages, generally, were good, and there has been a great improvement in this point during the last three years: a matter for congratulation.

Several competitors delayed the sending in of their exhibits for a week or more, and many exhibits arrived too late at both of the competitions: they should be despatched as soon as the request arrives. The government desires to ascertain the usual quality of the general make, and not the quality of goods made expressly for the competition.

(Translated by the Editor).

THAT (FORCED) UDDER AFFAIR

We had not intended at this juncture discussing again the now notorious case of tampering with the udders of Jersey cows shown at the Industrial Fair, but the following comment on the subject

from our esteemed contemporary, *Hoard's Dairyman*, is too misleading to be allowed to pass by unnoticed:

"It has been an open secret for some days that the Miller & Sibley herd of Jerseys at the recent Toronto Fair and Exposition were "jockeyed" by one of the employees that were caring for them. An erroneous scale of points and a fallacious method of judgment, whereby enlarged udders are given undue weight and prominence, was the temptation which led this super-serviceable employee to commit the offence which caused his employers such heavy financial loss and deep humiliation."

What strikes us as somewhat strange is that the gentleman who came to Toronto in charge of the Miller & Sibley herd and who acknowledged the wrong-doing, should be classed by the members of the firm and by the above journal as merely an employee. Since ever we heard of the Miller and Sibley Jerseys the name of that gentleman has been so closely associated with them that it is difficult to think of the business being carried on without him as it will now, no doubt, have to be. Practically speaking he has been the manager of this herd for years, and while the members of the firm may not have known anything about the Toronto trickery, yet it seems a small piece of business to shift the whole blame onto a mere employee. A mere employee in the proper sense of the term would hardly stoop to such low down business of his own accord.

But the statement to which we take strong exception is that contained in the last sentence of the paragraph quoted. We know for a fact that no scale of points for judging cattle in the show-ring has been authorized by the Industrial Fair Association. It was tried a few years ago in the case of the Jerseys, but was unsatisfactory. The judge is given "carte blanche," so to speak, and is allowed to use whatever method he pleases in deciding which animal before him is worthy of a prize. The judge this year was an American, and, we understand, in no way antagonistic to the Miller & Sibley herd, and there was no need whatever, and not the least excuse, for resorting to the despicable practices which an American exchange aptly characterizes as a "scandal of the show-ring."

But supposing the *Dairyman's* contention is correct and too much prominence is given to large udders in awarding prizes, it is in no way an excuse for such nefarious methods. Though the

temptation be never so great, it is no excuse for other than legitimate means to be used in fitting animals for the show-ring. As we pointed out in last week's issue, there is a danger of this fitting and fixing animals for the show-ring being carried a little too far, and it will not be an unmixed evil if this whole affair, though causing a large financial loss and a possible injury to the reputation of one or two breeders, results in moderating somewhat the too eager desire on the part of many exhibitors to "doctor" their animals before entering the show-ring.—"Farming"

IS SHE A DELUSION?

The General-Purpose Cow.

Ed. *Hoard's Dairyman*:—I have been a student of your paper ever since I know of its existence. I have derived a great deal of pleasure and profit from it. I do not think there is a paper published on the face of the earth that has so varied a lot of contributors as *Hoard's Dairyman*:—so varied in fact that one needs to be a close student of human nature to distinguish between those who are writing from theory without practice and those who are giving genuine information, derived from personal experience on a scale large enough to be profitable.

I learned early that I must frequently read between the lines, as many writers leave out the little details that really make the success of the undertaking they tell us about. To illustrate my meaning, one man will give his method of producing a certain crop and its results and forget to say on what kind of soil he was working. As a result, some one tried the same method on a different soil and made a bad failure.

Another, and a dairyman, told how he saved labour by only cleaning out his cow stable twice a week, and while in Colorado last month I saw the fellow that read it and thought he could save time and labor by moving the stable once a year.

I suggested to him that he build his hay stack through the middle of the barn and move his stanchions once a week. He replied: "By gum, I'll do it and I will write the other fellow and tell him I am two points ahead of him now. Say, Mister, stay a week with me and perhaps you can give me another pointer." Now, I have been greatly interested in the many articles written

against the general-purpose cow. So many, in fact, that it has become dangerous or exceedingly unpopular for any one to say a word in her defense. Mr. Shaw was brave enough to write some good articles in her defense last winter and from the way some of your contributors jumped upon him, one would think he had committed an unpardonable sin.

I have been boiling over for some time with a desire to come to this much abused animal's rescue, but have been waiting to develop a herd that I could challenge the whole company of special purpose advocates with, and prove from start to finish that the minority can be right sometimes. I will say, I think I have the herd all right, but an unexpected ukase recently issued by the Anglo Swiss Condensed Milk Co., prevents my issuing the challenge and demonstrating results.

The ukase states that May 1st, 1900, they will refuse to receive any milk from Holstein cows, or cows bearing Holstein markings. As a result, I must sacrifice the results obtained from years of careful breeding. I commenced farming when twenty two years old, without any previous experience, on a farm of 210 acres.

As the interest and taxes amounted to over \$1,000 per year, I discovered in the course of a couple of years that the veritable prices of general farm crops made it impossible to be sure of any certain income, and as the outgo was a certainty, I began to look around for a certain way to keep the sheriff and mortgagages at a respectable distance.

I decided that the general-purpose cow should be my sheet anchor and main sail. I rented 150 acres of land adjoining mine and a dairy of forty-five general-purpose cows, with an established milk route in the city of Dixon. Now, Mr. Editor, if you could see and realize what the general-purpose cow has done for me and others, as plainly as I see it, you would have a standing reward of a thousand dollars printed in great primer type, on the front page of your paper, for the conviction of any person guilty of defaming the general-purpose cow.

Why do I make that bold statement? Because she has lifted out of debt more farmers, sixteen to one, than the special purpose cows. She has done it in the past ages, and will do it for many more to come. First, she is vastly more numerous and will be for generations to come. Second, her dual qualities are being improved. Do her critics ever stop to think how much easier it is to

raise a general-purpose herd, from 4,000-pound producers to 6,000-pound producers, than it is to raise a herd of specials a like amount?

I did not realize it until I tried it. Now, if there are fifty general-purpose cows to one special purpose cow, and only twenty-five of the fifty belong to the progressive farmers, and are being improved, you must admit she is adding to our wealth vastly more each year than the other class.

For the first few years a fat cow was worth more than a milch cow; so I rode around the neighbors and picked out their best fresh cows, stuffed them with corn meal and hay, and in four or five months had a very desirable fat cow and not much milk: of course the butcher got her. I had got her best flow of milk and a profit from it, and another profit from her beef, and my ship sailed toward prosperity fast; but along comes the condensing factory. Everybody rushes into it, cows double in price, and all picked up or kept for miles around.

A black cloud suddenly darkens my horizon, for what will I do at the end of the next six months with a lot of fat cows on hand, and numerous customers clamoring for milk?

In the midst of my dilemma, a star appeared in the firmament, in the shape of a man—an agent for Thatcher's system of milk bottles and supplies. He just wanted to sell me bottles and milk pails, etc. I told him to get right out, that I was going out of business in a few months for want of milk.

He looked over my herd and remarked, "Well, Mr. Judd, I haven't seen as fine a herd in my travels, from the Atlantic to the Pacific, outside of a show ring." There they stood, forty-five great, fat, slick, shining, general-purpose cows. He asked what I fed them, and I said, just plenty of corn meal and timothy hay. (Used an eight quart milk pan for a dipper in those days, for I was always in a hurry you know.) Well he said if I would put one-third bran and one third oats with it I would get a better flow of milk, and they would not get so fat.

Then he asked me if I read *Hoard's Dairyman*, and I replied I never heard of him. (I was just out of a law office and had been interested in Cooley on Torts and Gould's Pleadings, and had not run up against *Hoard's Dairyman* or our good friend John Gould). But it set me to thinking, and I soon got acquainted with the paper and balanced rations and improved breeding, and I went into the stable, and apologized to my cows

for the many caked udders I had inflicted upon them, and a prayer for forgiveness from the noble animals I had sent into the great hereafter through the milk fever and slaughter house routes.

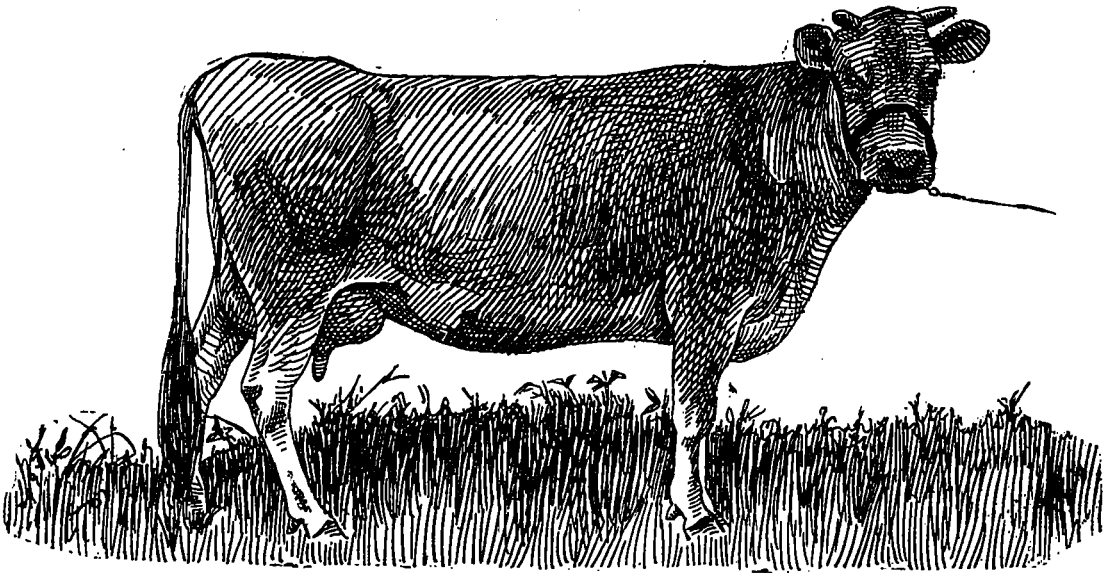
A car load of bran went into my barn immediately, and bran, oats, and corn meal was their ration. A field of clover and timothy furnished abundance of nice hay for winter, and corn fodder helped out the dry pastures in summer, and I had milk galore. A hundred and twenty-five dollar bull from a milking strain of Durhams furnished the supply of calves that made fresh cows, and did not have to scour the country for fifteen or twenty miles to get a fresh cow.

By this time I was taking nearly all the agricultural and dairy papers published, and studying them nights (had to work day times) and getting experiment station bulletins and books and studying breeds, and visited the best dairies in the country, and finally decided I could increase the milk flow of my herd most and quickest by selecting out twenty of my best young cows and cross them with a thoroughbred Holstein, depending upon the Holstein to increase the quantity and the Durham to retain the quality of the milk, and a medium tendency to retain the easy keeping quality of the Durham and cover up the slab sidedness of the Holstein.

It resulted in the most complete success imaginable. I had forty head, all marked black and white, that test in butter fat as high as any herd in the factory, and I expected this year to show the largest milk yield of any similar number in the country.

Now, after years of such breeding and weeding and the building up of such a herd free from kickers, steppers or hard milkers, with the milk yield doubled, the testing of each individual satisfactory, absolutely healthy, raised and wanted to the farm, gentle as kittens and handsome in form and color and such profit producers that the debt on the farm has long since disappeared and peace and plenty make life worth the living. I say under such circumstances it is any wonder it makes me sick to think of having to sell them to appease the distate of a corporation that sees fit to condemn a whole class of individuals because some few members of that great class have not tested up to their idea of a proper standard.

Right here I will say, that owing to the opening of the condensing factory and the Henderson shoe factory about the same time, and taking in about



1000 young men and women, it drained our farms of help both out doors and in the house so that I gave up my city delivery and became a patron of the factory, as I could get a'long with less help.

Now in conclusion, Mr. Editor, do you wonder that I love and praise the general-purpose cow when I have had such a profitable experience with her? Then, when I see her lifting other young men all around me into homes on beautiful farms costing a hundred dollars per acre, and paying for rubber tired *surries* and their family's dressing and living in style equal to the aristocracy of the cities, I am doubly convinced.

When we all know that she is doing it, not only around Dixon, but around Elgin and Fort Atkinson, in fact around every big city, it is wise or advisable to go such extremes as many of your writers do in condemning the general purpose cow and advising the young beginner to undertake the rearing of a special dairy cow?

As I got able, I experimented along special lines and convinced myself that the improvement is so slow and failures so much more common in the thoroughbred families, on account of the high tension to which they are already pitched, that nine times out of ten the young farmer will make a failure instead of a success.

I will save you lots of printing and manuscript reading by warning those that have made up their mind to reply to this that I have not used the term *scrub* cow. I understand a general-purpose

cow to be one that gives milk enough to pay a profit and can be disposed of at any time by a little extra feeding for beef, and that at a profit; that a special purpose cow is one bred so strongly in certain lines that it practically eliminates all other characteristics and can produce only milk or only beef at a profit. That a scrub is one that has no predominating tendency and is a failure for milk and beef.

A. G. JUDD.

Warren, Ohio.

The Horse.

TREATMENT OF FOALS.

In the case of farm horses, the mares are now required for the usual operations of the season, and the time has arrived for weaning the foals. It is very desirable that before weaning the young animals should be accustomed to artificial foods; where this has been done they feel the separation from the dam and the loss of the milk less than they would do under other circumstances. When the foal is weaned it is prudent to place the mare under mild aperient treatment, in order to cleanse the system and suppress lactation before being placed on the usual labour rations. Prior to weaning, the foal should be handled and trained to lead quietly. This is an immense advantage when the time for weaning arrives, and, in fact,

through life the lessons at this age are never forgotten. Experienced breeders never confine their weaning foals to bare pastures, from the danger of picking up the germs of disease with the natural food. Where breeding is carried out on a moderately extensive scale, a separate enclosure is reserved, and the strong growing grasses—cockfoot, timothy, ryegrass, the fescues, and other sorts of the same kind—are allowed to mature their seed culms and seed, which the foals eagerly consume, and on which they thrive.

The foal is a social animal, and rests and progresses best with company; these should be of the same age, and of corresponding strength. Weanlings should be removed and treated separately; a young donkey makes a suitable companion for a single foal. The field or paddock should vary with the number of the animals located; from four to six is the best. The field must have a small shelter shed and yard attached; the erection may be of an inexpensive character, covered with corrugated iron or other cheap material, and furnished with a manger; the inside of the shed and yard should be laid with concrete, with a fall to the outside. The shed should be kept clean and well littered; good peat moss is not only cheaper, but best for the purpose. The site of the field should be dry, to prevent poaching in wet weather. In severe weather the foals should be confined to the shed and yard during the night, and allowed their freedom during the day.

The food should be given in a prepared state. By employing the cheap portable furnaces now generally in use, this system is both cheaper and more convenient than that of grinding the various kinds of grain into meal. The best kinds of grain are a mixture of barley, oats, and linseed. Plenty of water is used. When the grain has been sufficiently boiled, and whilst still hot, it is added to a sufficient quantity of hay chaff to absorb the moisture, and is then fit for use; this mixture is fed twice a day. The quantity necessarily will depend on the size of the animals. The mangers must be carefully cleaned out between each meal, and the surplus (if any) fed to other kinds of stock. As a non-ruminant the horse requires little long hay, the liberal use of which is attended with considerable waste. A covered rack may be placed in the yard, where some well-cured hay may be supplied from time to time as circumstances may require.

A most important point, and one on which the success or failure of horse breeding and rearing mainly depends, is the attention devoted to the correct development of the feet during the early stages of their growth; though the limbs at birth may be perfectly formed yet in an immature and flexible state they are easily bent in an undesirable direction by neglect of the feet, which, allowed to continue, lessens the future value of the animal. All foals and young animals should be frequently submitted to the inspection of a practical veterinary surgeon, who will correct any abnormal growth of the hoof.

The next important point is a constant supply of pure drinking water. The underground water supply of most districts is charged, more or less, with the chemical constituents of the geological formations through which it flows. The purest and most wholesome water is that derived from the purring brooks and rivulets from the mountains, aerated and oxygenised by its contact with the atmospheric agencies. Next to this is the water supply derived from reservoirs, which is invaluable for supplying the stock of the farm. Where a sufficient head is obtained, a constant supply is secured. All troughs should be protected and the approach kept clean.

GILBERT MURRAY.

A X I O M S.

The world is made up of atoms, and the success of cultivation depends upon what might be considered minor details.

Better is a well cultivated farm in a civilized country than an uncertain gold mine in the distant desert.

Contentment is the parent of delight, and delight is the child of well directed industry.

A weedy garden is as disgraceful to its cultivator as a dirty face or ragged coat.

