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THE JOURNAL OF AGRICULTURE AND HORTICULTURE

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-- THE --

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Notes by the Way.

Markets.—The past year has seen many important changes in the general features of the agricultural interests. Prices for wheat, that had been abnormally raised, by the reckless speculations of Mr. Leiter in the Chicago and other markets, have returned to their more natural position; and that without doing so much harm to dealers or consumers as might have been expected. In England, the best qualities of white wheat, such as Chidham, Talavera, etc., are still worth 32s. a quarter, equal to 90 cts. a bushel, and as the average crop of '98 over the whole of Britain is rated at the, comparatively, enormous yield of 35 bushels to the imperial acre; (1) equal to \$33.60; the British farmer has not many complaints to make on that now, particularly since, owing to the marvellously fine weather of the latter summer and early autumn, the harvest was got in at a very moderate expense. No. 1 Hard Manitoba is, we see, quoted at 34½ a quarter at Mark Lane, or 6 cents a bushel more than the best English white wheats; unfortunately, there cannot be much of this quality to sell, as the weather during harvest in the North-West was the very reverse of the propitious weather that in Britain accompanied the ingathering of the crops.

Barley was a first-rate crop both here and in England. The malting quality of the barley grown in the Eastern Counties of England has turned out; after the usual three months mellowing in the stack or mow; to be all that the brewer

(1) Scotland grew 40.5 bushels to the acre; but then she grows but few acres of that crop. En.

can desire; and if the tariff of the States can be modified favourably by the Commission now sitting at Washington, the American Maltster and Brewer will rejoice over plenty of our 6-rowed barley they seem to be so fond of.

Russian *oats* are worth in London about 48 cents a bushel, and ours or American fetch a cent or two more. Canadian white *pease* sell there for the same price as the best wheat, namely 32s. a quarter.

There has not been much variation in the price of *live-stock*. Best Scotch beasts, that in London last year brought their feeder 4½ a stone of 8 lbs., are now selling for 4½; and the best small *Downs* are quoted at exactly the same rate, 5s. 8d. Of course, in all cases the phrase, "sinking the offal," is understood, i. e., skin, entrails, head, and everything but the four quarters. The Canadian *cattle-trade* has been, we regret to hear, by no means a profitable investment to the exporters.

As for the export trade in *sheep*, that will never turn out well until our forwarders learn that old ewes of the long-woolled breeds are not favourites in England:

December 5th, 1898; 8 stones (64 lbs.)	Downs (Wethers)	\$ 1.37	per 8 lbs
12 " (90 lbs.)	Lincolns	1.13	" "
10 " (80 lbs.)	Ewes91	" "

By this list it is easy to see that ewes are worth 46 cents a stone, nearly 6 cents a pound less than neat, small Down wethers. Of course, no one can get the fine four year-old wether mutton we used to be so proud of seeing on our tables in the thirties; many a time have we gone to Ewell fair, in Surrey, to buy lean three-year-old Hampshire-downs to fat for the family, and marvellously fine mutton they made after a winter's run on turnips, clover-chaff, and cake; but, even now, a wether of any the short-woolled breeds; whether South-down, Hampshire-down, or Shropshire, well fed, not under a year old, and not over 9 stone (72 lbs.) dead weight, will bring about the top price of the market.

The price of *butter* and *cheese* has greatly improved of late. By the last papers received from England, we see that Canadian Cheddar, of the finest quality, has reached the highly satisfactory price of 47s. (1) a cwt. (112 lbs.), and mild-

(1) Since writing this, we hear that the price has gone up to 50s., but best English Cheddar is still worth 15cts a pound, equal to \$16.83, as against \$12.00 for Canadians.

Ed.

salted Canadian butter is selling freely in London at 106s., American bringing 11s. less. Alas, Danish is still far ahead of our butter, selling, for the best qualities, at 126s. Now 20s. a cwt. is equal to 4½ cents a pound, and that is the difference our dairymen have to make up before we can truthfully say, that their goods sell as well in the London market as the Danish butter does.

Beans seem not to be liked in England; that is, haricot beans, as we use them here, and as they are used in France. There is positively no quotation of prices for them in the market-reports.

Hops are dear in England; only 47,000 acres in cultivation. Best East-Kent Goldings are bringing 170s. a cwt., and Mid-Kents 160s., while the coarser strains of the weald are worth 150s., and Sussex about the same; but the two last are only "porter-hops."

Wool is, not to exaggerate, as "cheap as dirt"; the best only fetching 17cts. for Downs, and 14cts. for Kents.

The best *clover-hay* is worth, on the London market, 97½; best meadow-hay, 80½, per load of 2,016 lbs.

Irish bacon, as well as Danish, sells for from 46s. to 55s. a cwt.; Best Canadian 43s. Those wonderful small Irish hams are eagerly caught at for as high as 110s.; but Canadian light-weights 56s. The difference is great, and ought to be diminished; for just look at what it is in dollars and cents! Irish, \$26.40; Canadian, \$13.44; or, per lb.: Irish, 23½cts.; Canadian, 12cts.! We do not mean to say that the gulf can be filled up in a hurry, but, surely, some approach to its abolition might be made. On what does it depend? On breed, on food, or in preparation? There is no fourth cause possible; and we have all the breeds the Irish have; all the foods, such as barley, pease, skimmilk, and whey; and, if our baron-curers are not yet so well skilled in their trade as the Irish, they might soon learn to overtake their concurrents.

The hundredth anniversary of the establishment of the Smithfield Club was celebrated in London on the 5th and five following days of December,

1898. Upon the whole, the Exhibition of fat stock seems to have been very successful, particularly in the specimens of early-matured animals of all kinds. The Galloways, Red-polled, and Welsh, which for many years were only shown in the older classes, have this year proved formidable competitors with the longer established breeds in the faculty of feeding profitably at an early age. In our day, we remember that Welsh heifers were not put up to fat until they had attained the age of four years; but many good beasts of this breed were shown at the Agricultural Hall this year that, at 2½ years old, were well grown, and thoroughly ripe for the butcher. We shall see more about this next week, when the weights of the stock that has undergone what is called, the "Block-test," are published.

The *Dexters*, though few in number, were very perfect in symmetry and make the best of beef. It was truly unfortunate that the engraving of the Dexter-heifer in the number for December 1st was so badly executed. The original, published in the English Agricultural Gazette, represented most successfully, and we had almost said eloquently, as pretty a piece of cow's flesh as ever ran on a Kerry pasture.

The display of *sheep* is said, by those who ought to know, to be superior to that of any year. The monstrous Lincolns must have been worth seeing, though defend us from having to eat any of their mutton, except, perhaps a slice from a leg. The heaviest wethers of this breed weighed 9 cwt. 2 qr. 22 lbs., or to translate that into our reckoning: 967 lbs., the pen of three; 322 lbs. apiece, at, probably, 21 months old!

But the wonders were the lambs. A pen of three Devon-Dorset crosses, probably lambed in the fall of 1897, weighed 237 lbs. each; and our favourites the Hampshire-downs were not far behind, turning the scale at 213 lbs., each.

Pigs, in consequence, we suppose, of the almost entire suppression of the disease, were much more numerous than of late years. Berkshires were said to be superior to any before seen, and there were plenty of them. Tamworths, a breed we shall never like, any more than Mr. Andrew Dawes of Lachine likes them, were fairly represented, and of excellent quality.

The *breed-cup* for Devons was won by the Queen's steer, as was the Hereford breed-cup: but in the Shorthorn lot, Her Majesty's heifer, Margaret, had to take second to Mr. Learner's heifer, Silence.

In *sheep*, Mr. Dudding of course took first for Lincolns; very few decisions had been given when the Reporter of the Agricultural Gazette had to send off his despatch.

A new "First Early" potato, called Klondyke, was exhibited by Mr. A. Findlay, of Markinch, Fifeshire, Scotland, the well known introducer of three of the best kinds of potatoes, viz., Up-to-Date, British Queen, and Challenge, all three of which took first positions in their respective classes in all the County Council experiments where they were grown.

As we have no really first class early potato here, except the Early-Rose, which is not of the best quality until nearly ripe, and as the best flavoured first early, the delicious Ashleaf Kidney, will not yield a profitable crop here, however well treated, would it not be as well for some of our seedsmen to import a few bushels of the *Klondyke*, by way of experiment?

It is a matter of great interest to us, this question of early potatoes. As we have mentioned before in this periodical, we have imported Ashleaf Kidneys three or four distinct times; some we grew ourselves, others we distributed among such of our farmer-friends, as might be trusted to do them justice, and with the exception of a bushel we planted at Sorel, we never found them yield a full crop. Two rules are invariably observed by all English growers of this potato: 1. Set the potato whole; 2. Give the land an unlimited dose of dung. Perhaps, this new sort, Klondyke, may turn out a better producer; a finer quality than that of the Ashleaf, it is hopeless to look for.

Green fodder for milch-cows.—A farmer, just about starting a herd of Shorthorns, writes to know what kind of green-fodder he had best grow to supply his milch-cows when the pastures run short.

In reply, we beg to say, that we have never found any green-meal, as we used to call it in England, superior to the mixture we persuaded several Sorel farmers, notably the Guèvremonts, to try in the year 1885. This consists of, per

acre, two bushels of oats, one of large white pease and one of tares or vetches; the last to be of the Scotch kind, if it can be had; Mr. Ewing, of McGill street, Montreal, used to keep it, and would doubtless import it again, if there were any call for it. In both the pease and tares, a large free growing sort is what is wanted.

The preparation of the land for the first sowing—three sowings at intervals of a fortnight or so, are needed—is all the better if the manure is ploughed down, not too deep, in the fall. The seed had better be put in about three inches deep, on a well harrowed surface, with a drill; if there is no such implements on the farm, the broad-cast machine, or a cultivator must be trusted to do the work. A roller finishes the work, after, a good harrowing, and makes the mowing of the crop much easier, thereby saving time, for, as every one knows, mowing among a lot of clods is the parent of a constant resort to the grindstone. Never mind what people say about the danger of frost injuring the young "braird," sow as soon as the land is fit for sowing.

As fast as the crop is cut for the cows, break up the land and, after making it fine, sow 5 or 6 pounds of rape to the acre, of which your sheep will be very glad in September and October: we have had sheep hurdled on rape as late as December 8th, in this province, and doing well. The seed only needs a rolling to cover it.

It would, doubtless, be well to sow an acre or two of corn for fodder; but any one who will fairly try the two foods, will find, we are sure, that the mixture we recommend will make more and better milk than maize, even when the grain of the latter is in the glazed state. The oats and pulse should not be begun until the latter are beginning to show for bloom, and should lie to wilt for a few hours after being cut. The quantity of seed recommended is for an imperial acre; the *arpent* may take 1/6 less.

It is far better to break up the land after clearing the crop off than to leave it alone, in hopes of a second growth; for, in the first place, with our hot summers, the second growth seldom comes to much; and, in the second place, the new growth is weak and washy food.

If no sheep are kept, cows can be allowed to graze the rape, provided always that they are not let in upon it until they have well eaten elsewhere, and the rape is dry.

Docking horses.—Mr. Halpin, a well known Montreal horse dealer, whom we recollect well, when, some thirty years ago, he used, with his father, to bring barley to our brewery at Chambly, tells me that it would be the height of folly to do away with the practice of docking horses' tails. All the same, he agrees with me that the colts and fillies that are at pasture in the summer need the protection the tail gives them against the flies that, since the atrocious ruffian, the sparrow, drove off the swallows, are more numerous and more pertinacious in their attacks than ever.

The Horse.

INFLUENZA IN HORSES.

As far back as 1299, Laurentius Rusius refers to a disease in Seville which destroyed 1,000 horses. The symptoms described tally as nearly as possible with those of to-day, viz: drooping head, weeping eyes, loss of appetite and hurried breathing. Again, in 1648, a disease is described with similar symptoms affecting the horses of the French and German armies. In 1727 the disease was very prevalent in England and Ireland. Gibson, I think, in about 1730 writes of the disease being catching. Another writer, Haxham, in 1743, refers to an affection attacking man and beast. During several years up to the present time, the malady has raged with more or less virulence. The pink eye form of influenza was mentioned in 1860, though it was certainly seen years before that date, and has reappeared frequently since both in Europe and on this side of the water, and probably from other parts of the world from which there are no reports. Now, in regard to the causes of this dread disease:

The predisposing causes of influenza may be in some part the following: Hard and exhaustive work, bad feed, and sudden extremes of temperature, such as we ourselves often experience. That it is epidemic in character, I do not think anyone who has had any experience will deny. It is more prevalent in the spring and autumn than at other seasons, owing, I suppose, to the variable temperature at those times. There is some difference of opinion as to its contagious and infectious nature, and strong advocates, I believe, are to be found to support either side. It is the popular

opinion that it is contagious, and in this I certainly agree, though I have seen horses stand side by side, with no chance of removing them, and the companion not take it: this might arise from the peculiar idiosyncrasy of the animal, or out of pure "cussedness." How often we find this happen with children and measles!

Certain it is that a stud is seldom attacked but several of the number become affected: why not all? They are all placed in a very limited area, breathing the same contaminated air, and in many instances fed and housed in one shed, and worked similarly: yet perhaps there is only 10 or 20 per cent affected.

The symptoms are very protean in character. Generally they may be divided into catarrhal, bronchial, pneumonic, pleuritic, enteric, and rheumatic catarrhal. In this form there is a quick weak pulse, sore throat, yellowness of the mucous membrane, drowsy appearance, paroxysmal coughing, urine high coloured: usual duration from 7 to 16 days. This form has been christened "pink eye," for what reason I do not know, and people take to new names with avidity, especially anything of foreign origin, and fancy it is quite a new disease. There certainly is a peculiar pink appearance of the eye in this affection, so that may account for the name. There is no doubt but that the name was adopted from the States, though the same disease had long been known to veterinarians in the old country, but still it may be a little appropriate, sufficing as it does to distinguish that phase of influenza of which swelling of the eyelids is an early, and sometimes the earliest symptom.

Bronchial.—In this form of the disease there is clammy mouth, with furred tongue, difficulty of breathing and stupor.

Enteric.—This form is often termed "bilious fever." It indicates the liver out of order, causing serious inactivity, with a yellowness of the mucous membranes. Evacuations are pale and shiny, tongue shrunken, pulse quick and wiry: the horse in slow griping pains and thirsty.

Pleuritic.—All the previous symptoms of stupor, combined with congestion of the lungs, with laboured breathing. If any previous disease has existed, the result is frequently fatal.

The following advice as to treatment is thoroughly practical, and simplicity is my aim.

Counter-irritation is an open question, though personally I believe in mustard poultices and even

blisters, but a veterinary surgeon being called in, he would decide whether fomentations of simple warm water to the side might be substituted.

The following recommendations may be found of service:

TREATMENT.

In the catarrhal and bronchial forms, head steamed with either hay or saw-dust, throat dressed with stimulating embrocation or mustard, and repeated as often as the case may indicate: if very sore and swallowing difficult, gargle carefully with nitrated water, or place some in the bucket, which should stand by the patient about a third full, so that he can moisten his mouth frequently as he feels disposed: place cap or hood on, clothe, and gently exercise not more than ten minutes at a time, and at a very slow pace, three times a day: give a loose box, short bedding, and plenty of air without draughts. Induce patient to eat as much green food and carrots as possible.

Bronchial.—Treat similarly to above, with the addition of counter irritants to the sides and trachea, should there be extensive bronchitis. This raises the question of counter irritation, and my experience has led me to the conclusion it is the correct thing. I have seen more direct benefit from counter irritation from mustard or blistering ointment properly applied than from any amount of physic, both in horses and humans. In applying the mustard, which for a cart horse should be 18 inches square; the hair should be clipped off, from the shoulder to the last rib but two, and from the superior third of the ribs to the bottom of the false rib, then sponge the part clean, and apply the mustard, which vigorously rub in for a quarter of an hour, and keep on the pillar reins till the irritation has passed off. The same treatment would apply to either the pneumonic or pleuritic form of the disease if severe, but the symptoms must entirely guide the practitioner, as to whether simple fomentations of the sides with a cloth well kept wet and covered with waterproof applied to the sides, would be sufficiently effective: no doubt in a mild attack it would.

Internally sodæ sulph. should be administered either in water, or dissolved and mixed with slop food, every time the animal is fed, say every three or six hours. If the patient is very low and eats comparatively nothing, give half a gallon of beer, and a good jorum of gruel.

Gentle exercise ten minutes at a time, warm

clothing, fresh air, and loose box. Sanitary arrangements to be made as perfect as possible. In the enteric form, should evidence of great pain be present, give sedative draughts, as often as case requires generally every three hours until relief is given. All food to be scalded and given warm.

Warmth, air, and good nursing are as essential as anything, combined with judicious exercise and management generally.

Convalescence once established will be followed in most cases by recovery, if careful management be continued until the period of debility and lassitude has been tided over. Moderate work and strict regimen are essential precautions, and any mistake may lead to a serious or even fatal relapse.

W. R. GILBERT.

Swine.

THE BACON TRADE AND PORK PRODUCTION

To the Editor of "Farming" :

I have been watching for some time the vast amount of advice that has been given to the farming community in reference to the production of export pork. As this has become one of the leading industries of to-day, I think it should be looked at from more than one standpoint, especially when that is an interested one. Most of this advice has been given by parties who, no doubt, know what they want, but are, as any practical farmer can see at once, utterly at sea when they begin to advise as to pork production. We have heard for the past few years but one ever reiterated statement, "There is no hog but the bacon hog" and the changes are many upon this word (bacon) until very many pork-producers are perplexed as to what it really means.

I have noticed that all this free advice has come from those who are engaged or interested in one line of the pork business, viz., the light bacon trade, as if that were the only article under the sun that was wanted in the pork line; and that the only proper hog for the purpose is an animal bred and fed in such a manner as not only will bring, but has brought, ruinous loss upon many who have run wild over this one of the many fads and booms which take place in all kinds of busi-

ness from time to time. Large premiums were promised to those who would raise this remarkable hog for this marvellous trade that had suddenly sprung into existence (as through the English people had only just discovered that they wanted a rasher of bacon for breakfast). I need not add that premium has never exceeded a few cents, and not seldom those few have been on the other side.

What is this much talked-of trade? And is it one that never before existed? I answer that is has been an old established business for many long years, and has been supplied from many points, the leading ones being Denmark, Ireland and Canada. The supply from Canada has been, until within the past few years, somewhat limited, as no one to my knowledge made a specialty until a comparatively recent date, Denmark doing the lion's share of business. Now what are the plain facts? That there is a demand in England among the wealthy classes, especially in London, for a lean kind of bacon, known there as breakfast bacon, and used for two special purposes, garnishing poultry and as rashers for breakfast, is well known. The demand for this kind is a limited one, however, and easily overdone. The poorer classes want and will have a thicker and fatter ham that will serve them as butter and shortening, etc.

Why, then, we ask ourselves, all this determined effort on the part of a few to boom one or two kinds of hogs to the exclusion of all others? The answer is not far to seek. The business has got into the hands of a few wealthy capitalists whose evident object is to flood the country with what they want, and then to an overcrowded market dictate their own terms. The great fat hog of four or six hundred weight is not wanted much to-day; but a nice, fleshy hog of 200 or 225 lbs. is, and always will be, in good demand. For this purpose there are breeds of hogs well adapted that are not being boomed by one or two interested parties.

A buyer from Montreal was at my place the other day looking for hogs. Let me quote his own words: "I have left this morning over twenty-five hogs that are of no use in Montreal, and I cannot get anything like what we want down there. The farmers are raising these razor-backs, and I would not take a car-load of them as a gift, for I could not sell them. I have been inducing everyone I see to desist from breeding these unsaleable hogs and breed smooth, fleshy hogs such as we need for our market. Otherwise

the western hogs must be obtained and the razor-backs left for whoever wants them."

As I purpose in the near future to refer to the advice that has been given in the past as to the feeding and preparation of the hog for market from the same sources as above, I will now close, thanking you for your valuable space and wishing you success with your paper, "a merry Christmas and a happy New Year." I have the honor to remain.

Yours truly,

R. L. HOLDSWORTH.

Port Hope, Ont., Dec. 13th, 1898.

The Flock

WEANING AND REARING LAMBS

By Prof. Jno. A. Craig, in "*Breeders Gazette*"

In the matter of weaning lambs, the time for it depends largely on the earliness of the lambing season and the degree to which the ewes continue to milk freely. Practice differ greatly, some weaning as early as four months, but most breeders consider that five months is about the proper time one year with another. The ordinary farm flock usually contains ewes and lambs until the lambs are to be sold for market and all the crops harvested. I would go largely by the condition of the lambs and the milking of the ewes. When the milk supply seems to fail, and the lambs are continually after the ewes for the reason that they do not get much at a time, it would be best policy to wean them. This condition of affairs holds the lambs back, as they continue to depend largely on the dam's milk, and it is not giving the ewe the chance that she should have to get into condition for another year's work. It is not advisable to have a fixed date for weaning, nor does it seem advisable to wean all the lambs at the same time, for in the general run of things there will be some lambs late and some early. For a week or two after taking the lambs away from the ewes (1) I would allow the latter to run over grain stubble or some poor pasture that they may dry properly. Some attention should be given to the udders, milking them out when needed that no quarters may be spoiled. As soon as the ewes are dry I

believe in getting them in condition for fall breeding. By late fall they should be in smooth condition; not fat, but smooth with a nice layer of meat.

Having fed the lambs grain since birth, which I believe should be done with all classes of lambs, they will hardly know that they are being weaned, especially if they are given a fresh run over the best of green foods, such as second-crop clover, rape, fall turnips or rye. Before weaning the grain fed produces the best results if it has been ground or crushed, but for lambs after weaning it does not matter so much unless very rapid gains are desirable. Lambs after weaning should get at least half a pound a head daily of some good grain mixture, with the best pasture or green fodders that are obtainable. For the lambs that are being fattened for market the grain mixture might be corn and oats, equal parts by weight, or if it is a neighborhood where peas are grown or pea screenings are obtainable at customary prices, I would include cracked peas in the ration, making it one third by weight. With rape or second-crop clover or a field of rye to graze, healthy lambs should make very profitable progress. For the lambs I believe in just as heavy feeding as they will stand of such food as bran and oats. I do not believe that there is any other time in the lambs' existence that the good shepherd shows his qualities to more advantage than in forcing the ewe lambs ahead at the time they need the best care and feed, as at this season. To have stout and strong yearlings they have to go through the winter in proper condition, and to be put in that condition they require good feeding in the fall. The ram lambs need to get good feed also to do well. In fact they are given to such restless activity that they require fully better feed to make as satisfactory appearances as the ewe lambs. Good oats with the green fodders that have been named will likely be satisfactory if the lambs are free from worms, clean in fleece and without maggots, which are all things that should be carefully watched for at this season.

The way lambs are pastured and the green stuff that they get has a great deal to do with their thrift. Close feeding is likely to result disastrously both on the appearance of the lambs and their health. Some one has said with more than common aptness that to get the most out of pasturing stock there should be pasture enough for two head and only one to eat it. Fresh pasture is of as

(1) Always do the reverse. Take the ewes away from the lambs, leaving the latter in the field they have become accustomed to. Ed.

much importance as an abundance of it, and if possible it should be so arranged that the lambs may be changed from one field to another at intervals. This can be accomplished by the use of hurdles and for safety should be followed in the instance of any green food that is very luxuriant and abundant. While clover and rape are admitted as very satisfactory crops, it has seemed to me that rye has not received the credit for this purpose that should be awarded to it. Rye is benefited by having the sheep run on it in the fall, and it is certainly excellent for the sheep. If the rape fails on account of the drouth, or the clover aftermath does not furnish the required feed, it is a safe plan as a rule to sow some rye early in the fall, for if there is any crop that will produce under adverse circumstances it is certainly this. (1)

AGRICULTURAL NEWS AND COMMENTS

The following three questions should be asked by every farmer before deciding to buy anything: Do I need this? Am I getting it as cheaply as anybody can? Shall I get my money back in any way?

A home dairy department has been organized in connection with the Western Dairy-School, Strathroy, Ont. Miss Shuttleworth, a graduate of the Provincial Dairy School, Guelph, has been appointed to take charge of this branch.

The National Creamery Buttermakers' Association will hold its seventh annual convention at Sioux Falls, South Dakota, from January 23rd to January 29th next. Arrangements are being made for the greatest convention in its history.

Russia, as well as Denmark, buys largely of the English swine-breeders to cross with the native pigs. In the Russian hog there is much blood of the Berkshire strain, and a number of large white Yorkshires have recently been sent there for breeding purposes.

There are in operation in the colony of Victoria, Australia, 325 creameries and 195 butter factories, making a total of 520, and the export to Great Britain for 1897 was 8,454 tons. The Australian colonies total 13,544 tons, being 364 tons more than Canada and the United States.

Periodically, the Australian farmer has to contend with hot winds, the lack of rain, and the

utter destruction of animal and vegetable life over large areas. In this way he is seriously handicapped. He may have several good years and then may come a bad one that will destroy nearly all his past efforts.

The best medicine that can be given swine in cholera or other times is something to keep them well and in good appetite. It is hard to doctor a sick hog. A half pail of skim-milk, in which are stirred a half-dozen raw eggs, is a good and grateful dose, and will soothe and heal the inflamed stomach and bowel linings.

A live stock exchange says: "Dehorned cattle sell better than horned cattle for all purposes. They are preferred by shippers, slaughterers or exporters. They look better, feed better, sell better and kill better. The man that feeds horned cattle is handicapped from ten to twenty-five cents per hundred weight in most cases"

Dr. Bailey summarizes the effects of tillage thus: It sets plant food free, promotes nitrification, supplies air to the soil and roots, makes all soil available by fining it, breaks up the hard pan, makes a reservoir for water, warms and dries the soil, saves moisture, sends the roots of trees downward, and makes the moisture and fertility of the soil available.

The Manitoba Dairy School re-opens on January 4th next under the direction of Dairy Superintendent Macdonald. The home dairy course begins on January 4th, and will continue for four weeks. There are two courses for factory cheese and butter-makers, beginning on February 1st and March 1st respectively, each one being a four weeks' course.

Professor Haecker says: "I take stock in the Babcook test, but not in the theory that you can take the Babcook test under your arm and go off, and by testing a cow's milk once determine her value. She must be tested several times during her milking period. You must also know how much food she consumes to know whether or not she is a profitable cow."

Every farm should have a well-equipped workshop where light repairs to farm machinery and implements can be made. It is not necessary for the farmer to be a regular mechanic to do work of this kind. With a small work-shop, fitted up with a good vice, work-bench, brace and bit, saw, hammer, nails, etc., a farmer could save money by keeping all the farm tools in order.

The annual competition in plowing sod by the

(1) And poor watery stuff it is, though useful at times.
Ed.

first and second year students of the Ontario Agricultural College was completed on November 19th last. Forty students entered the competition, ten of whom were successful, and received the coveted badge, and six were highly recommended. Farm Superintendent Rennie states that the plowing this year was the best average they have ever had.

A new cattle dip has been discovered that promises to revolutionize the American cattle trade, more particularly the trade in Texas cattle. It consists of eighty-six pounds of sulphur dissolved by heat in 1,000 gallons of extra dynamo oil. This dip has been tried, and has proved effective in destroying ticks, and does not injure the cattle. The female tick is a large as a dime, and is the cause of the Texas fever.

An International Poultry Exhibition will take place at St. Petersburg, Russia, from the 13th to the 28th of May, 1899. Exhibitors will have free entry for their exhibits on condition that they be exported from Russia within two months after the close of exhibition. Exhibits will consist of nine classes, and diplomas of honor, gold, silver and bronze medals and objects of artistic value will be awarded as prizes.

Gumming is caused by the action of a fungus upon the sap of the tree exposed by the boring of the grub. A watch should be kept for traces of borers, and where found destroy the insect by forcing a thin piece of wire into the hole, or by putting in some wadding dipped in bisulphide of carbon, and closing up the hole. All diseased bark should be cut away and the wound covered with paint, and then sprinkled with sand.

The Farmers' National Congress of the United States will hold its next annual gathering at Fort Worth, Texas, on December 6th to 14th, 1898. Ex-Gov. Hoard, of Wisconsin, is its president. On the programme, which has just been published, we find that Mr. C. C. James, Deputy Minister of Agriculture, Toronto, is down for an address on "Agriculture in the Public Schools." The meeting will likely be a most profitable one.

Good horses have been getting scarce. They have been going to market at a rapid rate during past three years. At Chicago alone during the last ten years 105,000 head were handled, and the year's business at other American points is the greatest on record. This year is the first of the revival of breeding, and it will be at least five years before the foals of this breeding will be ready

for market. This means that for the next five years the present supply of horses will have to be depended upon.

"FARMING."

Household Matters.

(CONDUCTED BY MRS. JENNER FUST).

Many strange things have happened during the last year, but 1898 will ever be memorable, if for nothing else, as the year in which the Kahlifa was overwhelmed. Pluck and perseverance, united with scientific knowledge, have done the work, which looked at one time impossible; the exertions of years of hard work are rewarded.

Khartoum is taken. A cruel people have been taught a lesson they will not easily forget; and now comes the task of teaching these wild men how to live under the influence of civilised people; that, and much more, is the next move in this great drama. (1)

By the Cubans and others, the old year will be remembered with grateful hearts, as the year in which they were delivered from cruel oppression.

They can now turn their attention to the neglected soil, without the cultivation of, which no nation can live, and sow with the certainty that the harvest will be their own to reap.

Home life will be a reality to many of them once more; and, when all is settled, the cany hope to become again a prosperous people, and thus the world wags on its way, and we hail with delight the new year with all its future unknown events.

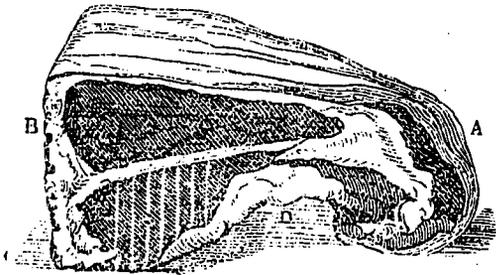
HOW TO CARVE A SIRLOIN OF BEEF

The under part should be carved first, as indicated in the engraving across the bone. In carving the upper part the same directions should be followed as for the ribs, carving either side, or in the centre, from A to B, and helping the fat from D.

The undercut is always tender, and as a rule helped, to the female part of the family, this part is always tender. Some people prefer the upper cut as it certainly has the better flavour of

(1) The Baggara tribe was utterly unteachable. Fortunately it has been destroyed. En.

the two, and it will not be tough unless the beef is from an old or badly fattened animal, and this will be the fault of the buyer, or the butcher who



Sirloin of Beef.

has palmed off on an unsuspecting person an inferior piece of beef.

A BOILED TURKEY

Some people there are who do not hesitate to aver that "a turkey boiled is a turkey spoiled." Such, however, is not the opinion of your humble servant, and to those who have not tasted this dish I would say just try it. In the selection of the turkey be careful to choose one that has a fine-grained skin, that has the breast-bone well covered with meat, and that has not dark, discoloured legs and thighs. Ask the poulterer to pull out the sinews before sending it home. After it has been prepared for cooking, stuff it with a pound or a pound and a half of sausage meat, and boil or steam until under. Serve with oyster sauce and a boiled ox-tongue, or, if preferred, the place of the tongue may be taken by ham or bacon. The best vegetable to serve with the turkey is stewed celery.

SOUP MAKING

The time of year is fast approaching when a little good soup becomes almost a necessity in the daily menu. Some people who are very fond of soup do not make it so often as they would like to because they have got the idea that good soup is expensive. Such, however, is not the case unless fresh meat is purchased for the purpose. One of the most nourishing soups can be made from ordinary bone stock. Having made your stock the day before you need it, so that every particle of fat may be removed, you have the foundation for many nourishing soups, of which lentil is one of the most economical. Take a pint of lentils, one onion, two sticks of celery, or celery salt to

taste, one and a half ounce of butter, salt, and three pints of stock. Wash the lentils and let them soak in water all night, grease a saucepan with the butter, put in the lentils, the sliced onion and the celery cut in pieces; put the saucepan on the stove 15 or 18 minutes. then add the stock and simmer gently for an hour and a half. Rub the lentils, and vegetables through a hair sieve with the liquor, and serve very hot.

A SUPPER DISH

A galantine of rabbit is a very tasty and decorative dish for the supper table, and may prove of service to some of my readers, during the present festive time. (1) Take two young rabbits and stew gently about one and a half hours, with an onion, a stick of celery, a carrot, a bunch of herbs tied in muslin, pepper and salt, and water sufficient to cover. Then remove the meat from the bones, and cut it into neat of one or two inches square, rejecting all the bones skin, and gristle. While the meat is cooking soak one-half ounce of gelatine in a gill of cold water. Strain the liquor through a thick cloth, colour it to a nice brown, and dissolve the gelatine in it. If not sufficiently clear, strain again through a cloth. There should be about a pint of liquor in all. Flavour it further with a squeeze of lemon juice and two tablespoonfuls of sherry. Line a flat galantine tin with slices of hard-boiled egg, scatter chopped parsley between each slice, pour a little of the liquor over this, and let it set. Then mix the remains of the liquor with the rabbit and fill the mould, using more hard-boiled egg, if you have it, and a few chopped capers.

CHEESE SAUCE

A cheese sauce which is delicious in conjunction with boiled macaroni or a nicely-cooked cauliflower is prepared in this manner:—You take a good heaped tablespoonful of flour, and mix it smoothly in a small teacupful of milk. Place this in a saucepan on the stove and stir continually, adding by degrees one heaped tablespoonful of grated cheese.—Parmesan is best, six drops of lemon juice, and a flavouring to taste of salt and pepper. Cook well, stirring all the time, say for about ten minutes; take a piece of butter about the size of a walnut, cut it into small pieces, and

(1) The "rabbit," so called, of this country is really a "hare": *Lepus Canadensis*. Ed.

stir gradually into the mixture; and, last of all, add a tablespoonful of cream. Be very very particular that the sauce is not boiling when the cream is added, nor must it boil afterwards, or it will curdle and spoil the sauce.

POWDERED PARSLEY

We are continually reading recipes in high-class cookery where something green is used as a garnish, and for this purpose, especially in winter time, powdered parsley comes in very handy. To make powdered parsley is easy enough, like everything else, when you know the way, but I find few average cooks know how to prepare it for use. You must take a small bunch of parsley and dip it into boiling water; this makes it a brilliant green. After this put it into a hot oven for a few moments to dry, being careful not to let it scorch and turn yellow. After it is dry rub it through a sieve to make it a fine powder, and bottle for future use.

VEGETABLE SOUFFLE

This dish will be a novelty to most of my readers. It hails from the States, and is really very nice indeed. Scrape, wash and steam two carrots until tender; take up and rub through a sieve with one large boiled potato; add an ounce of butter, a tablespoonful of flour mixed until smooth with a little cold milk, a teaspoonful of salt, a dash of cayenne, and a tablespoonful of chopped parsley; mix all together in a sauté-pan over the fire. Beat in the yolks of three eggs. When cool add the stiffly-frothed whites of four eggs. Grease a soufflé mould or a tin pan, dredge with dry bread crumbs, pour in the mixture, sprinkle the top with browned crumbs and bits of butter, and set into a moderate oven to bake.

PUFF PASTE

This is a simple recipe for puff past, which if properly carried out a novice may succeed in making successfully. You will need one pound of flour, one pound of butter, one egg. Take from the butter a lump the size of a hen's egg, and rub into the flour, and adding a pinch of salt, knead the flour and egg into a very stiff dough with cold water. Have ready an extra half-pint of flour for dredging, and if possible have a marble slab on which to roll pastry. Divide the butter into five equal parts. After kneading the dough full ten

minutes, roll it out on your board or slab and put on one portion of butter cut into small bits and dotted over the dough. Dredge over a layer of flour, and roll up, then out over the board again. Repeat this process until all the butter and flour are consumed, and you will have delicious flakey pastry for the lining of pudding or patty pans.

I do not recommend this as family pastry, but sometimes, such as at Christmas time, when a superior pastry is desired, this will be the one to make.

CANNING FRUIT

The process of canning is a simple one, being merely to drive out the germs of fermentation by heating the fruit and excluding the air. Success in canning depends not on the amount of sugar used, but on the entire exclusion of air. To accomplish this, there are two methods in use. The first and most perfect method, and that employed by the canning factories, is to pack the fruit, neatly prepared, as closely as possible into the glass jars. Fill the jars with a syrup made by boiling water and sugar together, in the proportion of about one cup of sugar to one quart of water. This will make syrup enough for two quart jars. Place the jar in a tank or boiler of tepid water on a rack, so as to allow the water to come within an inch of the top of the jar; screw on the cover loosely without the rubber, cover the tank or boiler, and boil till the fruit is done. Ten, or at most twelve, minutes are enough for berries, currants or other small fruits; from twenty minutes to three hours for peaches, pears and apples. Have some syrup ready for filling up the jar. When done, remove the jar from the water, fill to the top with hot syrup, wipe off the neck, put on the rubber, and screw down the cover tightly.

The second method is the one most used by the housewife in America. It is simply to boil the fruit in sugared water in a porcelain-lined stewpan, or kettle, until it is sufficiently cooked, and pour it boiling hot into the jar, stirring it about with a spoon to let the air-bubbles escape; fill up with hot juice or syrup, wipe the neck with a moist towel, put on the rubber, and screw down the cover tightly, and tighten again when cold. A tin funnel to put in the mouth of the jar, made for the purpose, facilitates the filling of the jar. If the fruit is in pieces like apples, peaches, and

pears, it should be placed in the jars carefully, with a fork or spoon, a little sugared water being first put in to temper the jars. If there is fruit remaining in the kettle, it should be drawn to one side of the stove, and not allowed to overcook while the filling process is going on; frequently fruit is spoiled in this way. In an accident or oversight of this kind, it is better to use the fruit right up to the table, and prepare fresh fruit for the jars. The advantages of this method are that much more fruit can be put into each jar, after shrinking by cooking than in the fresh state. A bushel of cherries, berries, currants or peaches can then be disposed of in a half day by a woman accustomed to canning. To achieve the best results in this work, it is necessary that the fruit be fresh, of best quality, and not over-ripe. Soft fruit, like strawberries, should be canned the day they are picked. It is better not to can any fruit picked overnight, and care should be used in handling all fruits for canning purposes. All jars must be in perfect condition. After having been once used, they should be put inside the can and the top screwed on loosely. This is a better plan than screwing the top tightly on to the rubber. Fruit in glass jars must be kept in a cool, dry place, away from the light, preferably in a cool dark cellar. Thick brown paper should be wrapped round jars where there is light. "Mrs Shelton stated that she preferred the Mason parent jar. The "Lightning" patent, however, with adjustable wire fastening, saves time, labour and breakage.

The quantity of sugar used ranged from four to eight ounces per quart, but it really was a matter of taste, the object being not so much to have the fruit sweetened, but rather that it should be stewed so as to retain its flavour; for the matter of that, it could be put up without any sugar at all: Vegetables were canned without any sugar.

To can tomatoes successfully, they must be kept away from the light. No sugar is used at all. The tomatoes are put into the kettle or boiler, and boiled for about twenty minutes to cook them thoroughly, and the jar filled quickly and put away from the light; or the tomatoes may be cooked in the jars. (Extract from "Hints on Vegetable and Fruit Farming," by Charles Whitehead, F. L. S., F. G. S.)

The Dairy.

THE DUAL-PURPOSE COW.

The sacrifice of the dual-purpose cow during recent years is one of the greatest mistakes of American farming.

That at least is my judgment. (1) And the wholesale way in which she has been sacrificed is altogether regrettable. It is on a par with the burning of the mighty forests that were the pride and glory of this land in former days. It is akin to the sacrifice of fertility that is yet going on in the West, in a way so wholesale that it should fill the mind of the thoughtful observer with solicitude for the future. And the preachers of the gospel of the special purpose dairy cow, are very largely responsible for the sacrifice of the dual-purpose cow. They, more than anybody else, are chargeable with poisoning the minds of the unsuspecting farmers with the delusion of their teachings, and they more than anybody else, must bear the stigma of the great check which has thus been given to a progressive agriculture.

Time, however, will heal almost any sore, howsoever painful and distressing. But usually the physician can do something to improve the conditions for healing. So it is with the healing of this great wound that has been given our agriculture—that has been given to a progressive agriculture. Much may be done to aid in the restoration of the dual-purpose cow, and it is now in order to consider those measures which are likely to aid in the speedy restoration of the same. What are they?

Why, first, drive out those cat-hammed dairy bulls, which, during recent years, have wrought such havoc amid the dual-purpose herds. Send back those wreckers of prosperity, when out of their own rightful place, to their rightful owners—the dairymen. Cover each with a blanket, before the return journey begins, bearing the inscription in the plainest characters: "Tried and found wanting," that all who read may be warned. If the dairymen refuse to take them back, send them, by a short cut, to the stock-yards. The poor are yet in the land, hence their meat, when canned, need not be wasted.

Second, meet the teachers of the false doctrine,

(1) And most emphatically, ours. Ed.

every time, on the platform and in the press, with the one question, viz.: prove your charges. They have made two charges against the dual-purpose cow, which they can't prove, and which they know they can't prove. They have said, first, that there is no necessity for the dual-purpose cow—that there is no place for her on the farm; and they have said, second, that the return from the dual-purpose cow in milk and meat is not equal in value to the return from the straight dairy cow. They have proved neither charge, and they cannot prove either. Again, I challenge them to do so. When thus met, silence must follow, and it is silence that must go down through the centuries; silence profound, never-ending. The scattering of the seeds of delusion will thus be checked, hence no more such costly harvests will be reaped by the farmers, as a result of such seed-sowing.

Third, reverse the engine of breeding on the farm and have it go in the opposite direction. The farmers have been diluting the meat-making element with the blood of dairy sires. Let them now repair the damage and restore the injured meat-making property by the use of meat-making sires, but wisely chosen. By wisely chosen, I mean good individuals descended from ancestry of fair milking qualities. Where the diluting influence of dairy blood has been marked, it may be well, at first, to use sires of a pronounced beef type. The traces of the defacing will thus be more quickly removed. The farmers may take a leaf out of the dairymen's book. They can give him a taste of his own medicine. Dairymen have been drawing largely on the dual-purpose blood to enrich their own herds. They have found that the dual-purpose cow, as found, in the Short-horn grade, has given them a splendid dairy cow, and because of this they have practised on the farmer's credulity. It wasn't all patriotism that prompted the dairy preachers to preach as they did. While they were avowedly bemoaning the lean condition of the purse of the dual-purpose cow owner, they were stealing away from him his cow. Let the owners of such cows reverse the process. Their blood is plastic because of its mixed condition, hence it has but little power to resist change. In other words, the weakened blood elements of the cow thus bred will influence the progeny much less than the pure beef male with which she may be mated. The many large bodied cows in the land, now largely dairy in their leading essentials, can thus be quickly changed in their descendants

into dual-purpose cows. I would not convey an erroneous impression. I do not mean that dairymen should thus breed their cows. The reference here is only to men who want a dual-purpose cow. Dairymen have done wisely in the efforts that they have thus put forth to improve their cows. It is not their zeal in the improvement of their own line of cows that I am combating, but their fanaticism in wrecking the farmer's cow, the dual-purpose cow.

The dual-purpose cow restored again, how shall she be maintained? Why, by a judicious line of breeding. The argument has been current of late that the farmer who wants to grow beef and milk should seek beef bulls of the most pronounced type and mate the cows with these. He should send all the progeny to the block. When his cows wear out, he should supplant them with other cows of similar types.

If you ask those men where do they get such types of cows, they answer among Short-horn grades. I look upon such teaching as absolutely unsound and baneful in its influence. And now for the reasons: First, push that system to the inevitable conclusion to which it leads and the whole race of such cows would disappear in time from the face of the earth. And second, it denies the possibility of doing again what has been done. Where did those good Short-horn grade cows come from? They did not fall like manna from the sky; they were bred, and the process which bred them once can assuredly be repeated. How were they bred? By using Short-horn males on common cows of but little breeding or of mixed breeding in days when cows upon the farm were milked. Why can't the same thing be done again? If this class of cows one filled the land, and that they did is a matter of history, why can't they be made to fill the land again? If such cows were produced by breeding in a sort of aimless way, why can't they be produced in superior form where intelligent breeding is practised.

If there are dairy Short-horns and Short-horn grades in England, which also fatten well, when the same may be desired, there may be dairy Short-horns and Short-horn grades with similar properties here. Of course, when such restoration is sought the extremest form of beef production in the sires should be shunned, and a rigid selection of the progeny must be carried on. Follow such a system wisely, and ere long a class of dual-purpose cattle would be evolved superior, in

attainment, to anything that the world has ever seen. This, at least, is what may be expected.

The doctrine is reasonable, and it is eminently practical. That there is antagonism between the extreme beef form and high dairy production is equally true. But there is no inherent antagonism between a goodly development of both properties in one and the same animal. Nor is there any inherent antagonism between much milk making on the one hand, while the cow is in milk, and much meat making on the other hand, when the cow is dry. You can't fatten a cow of the extreme dairy form when dry, as you can fatten a Short-horn grade, dual purpose cow when dry. Why? Because in the former such plasticity of constitution, or power of adaption to the reversed conditions is not present; in the latter it is. All milk production is not antagonistic to the beef form, and all meat production is not antagonistic to the dairy form. The great question, therefore, in growing the dual-purpose cow is to push dairy form, but not until it will clash with meat production in the dry cow, or in her progeny when not in milk. Experience has proved that this idea can be carried so far that a goodly supply of both can be secured from one and the same animal.

THOMAS SHAW, in the "*Breeder's Gazette*."

EFFECTS OF FOOD ON MILK

Mr. Shanks, in the *Gazette* of August 1st, suggests that the difference in the quality of the milk from the two pastures referred to by me might arise from the decreased churnability of the one sample, which, retaining a high percentage of the butter-fat in the milk, and butter milk, yielded less butter than analysis would show; was really present in the milk; but, unfortunately for this argument, the milk from the pasture specified was so poverty stricken that the most casual observer must see the difference between it and that produced from a richer pasturage; besides which, when tested in the form of puddings, custards, &c., the butter-fat would be readily apparent, even if, from some cause or other, the churn failed to reveal it, and I can assure him the palate proclaimed its low quality quite as unmistakably as did the churn.

He refers to a pamphlet upon the subject by Mr. John Speir which, thanks to the courtesey of the writer, I have now before me. It contains the records of a great number of exhaustive and inte-

resting experiments, though none approach the low grade food suggested by me in order to set the matter at rest. But it is useless thrashing a dead horse; even Mr. McConnell himself admits that food does influence the quality of milk, for in an article from his pen in the *Staffordshire Advertiser* of July 23rd, I transcribe the following:—"The natural food of the cow in summer time is, of course, pasture, but the value of the pasture has a good deal to do with the yield of the animal. On a cheese-making or butter-making farm it will be found that the old pasture gives much the best results; in other words, that the milk will yield more curd or more butter per gallon where the pasture is old and full of clover and other leguminous herbs," which is exactly what practical dairy keepers have been contending for; and is, in fact, a striking proof of the truth of their theory, that food does affect both the quantity and quality of milk. Mr. Speir's experiments, which go to prove that different milks require to be churned at widely-differing temperatures, according to the foods from which they are produced, opens up a most interesting and important question; and is, in fact, a distinct advance upon the present science of butter-making. He found that the temperatures varied from as low as 55 deg. Fah. (52 used to be considered the most reliable degree) up to as high as 70 deg., and this in accordance with the differing foods, without, in the later case, affecting the firmness and solidity of the butter.

His researches would appear to show that most of our butter troubles, or, at least, our churning troubles, are the result of operating at a wrong temperature, and though in all cases the temperature of the building should also be taken into account, it must be of importance to thoroughly understand this aspect of dairy management, which might well be made the subject of fuller and more exhaustive investigation.

But I venture to suggest that not only does the food affect the quality—especially the butter-fat—in the milk, but it also greatly affects the quality of the butter produced from it. Referring again to natural pastures, the choicest and finest flavoured butters I have ever met with have been the production of old pastures closely over-lying the new red sandstone, whose short, fine-growing herbage is of that fragrant quality which, when mown, renders the air around redolent of the sweet scent of the odoriferous essential oils and volatile ethers transformed by the cow which grazes on them

into butter unapproached in its delightful nutty flavour.

Two striking instances of the effect of food, upon the quality of dairy produce recall themselves to my mind, and may be regarded as appropriate to this aspect of the discussion.

In the one the wife of a gentleman farmer whose pasture land was of the nature referred to took a great interest in her dairy, and attended to it herself entirely. Though her system of butter management differed considerably from that which experts generally advise, still the butter from her dairy was noted over a wide area, and, more satisfactory still, won time after time in strong competitions at various shows, till Mrs. K—'s butter was accepted as a standard of high quality. Some years ago the farm was relinquished for another and, in most respects, a better farm, and the cattle removed to it; but the rich feeding pastures far before the other in this respect—although they yielded butter equal to them in quantity, colour, and texture, failed in the choice nutty flavour which had distinguished the earlier farm, and prizes were things of the past. One well-known judge, when asked what was the matter with the butter replied: "The management is perfect, but the flavour is weak," and recommended a ration of bean meal to assist it, but even this could not make amends for the lack of the proper herbage. In the other case a Cheshire dairy farmer, noted for his cheese, removed with his herd into the borders of Staffordshire where, though he had the same cows and the same dairy manager, his cheese which in the one county had sold readily at 60s. the cwt. and upward, in the other, though showing little variation in quantity, would scarcely realise 40s., the outcome solely of the difference in the pastures. After a time he began to supplant the grass with concentrated food, and has kept up the practice to the present day, and this enabled him to regain his former position in the market, to my mind proving that food affects alike the quality of the milk and its products.

W. GODWIN.

Market Drayton.

Eng. Ag. Gazette.

The Orchard and Garden.

(CONDUCTED BY MR. GEO. MOORE).

THE WATERING OF FLOWERS

Use of Water.—Water serves to transplant soluble mineral salts from the soil to the plant, in addition to providing in its elements actual plant food. Superfluous water absorbed by the roots when obtaining inorganic food-matter in this way is transpired or given off from the surfaces of the leaves.

Abuse of water.—The surface soil often becomes dry, while that in the lower and middle portions of a pot is yet damp, and if a practice be made of watering whenever the soil is dry on the top, the roots are gradually suffocated by the continuous saturation of the lower parts of the pot with water preventing the circulation of air around and between them. *The respiration of roots is always stopped in water-logged soil.* If gardeners would only consider the extreme variations as to water supply that are safely endured by plants growing under natural conditions, the very many and grave diseases induced by injudiciously liberal watering, consequent on over-anxiety for the welfare of the plants, would be avoided.

Amount of water.—The amount of water required by any plant depends upon its species, age, position, health and development, as well as upon the season of the year. What is just enough at one period may be sufficient to cause serious injury a few weeks later. Generally speaking, plants (1) that grow naturally in rocky, unsheltered situations or in countries where long droughts occur, (2) those with narrow, tough leaves (3) hard skinned, succulent species, like aloe, and (4) those with thin and hairy foliage, require little water; while broad, leathery-leaved plants with succulent roots, and those with roots that grow rapidly downwards, need abundant water; but fibrous surface-roots usually indicate the ability to do with little moisture. When watering is really necessary, copious supplies should be afforded, so that, in the case of pot plants, water may freely run from the hole at the bottom of the pots.

Frequently repeated sprinklings are most injurious, because they leave the lower parts of the soil dry, while the upper surface becomes covered with moss, so that the atmosphere cannot percolate through it.



When to water.—Pot plants will not be harmed if left unwatered until the pots sound hollow on being rapped. Indeed, it is positively beneficial to most plants, excepting perhaps rapidly growing herbaceous species, to occasionally feel the want of water.

When to water freely.—All plants require liberal supplies of water when they are producing new shoots, because then they need considerable amounts of mineral salts from the soil for the building up of new organic tissue. There is very little risk of over-watering rapidly growing herbaceous plants at any time excepting during their actual rest-period.

When to water sparingly.—When shoots are developed, and it is time for the flower-buds to form, watering must be decreased. If water be freely given at this period, the shoots will grow on continuously without the formation of flower-buds, which is best induced by a short rest-interval caused by diminishing the supply of moisture. All plants that endure for more than a single year have a natural period of rest, commencing with the fall of their leaves, and during this resting-period, even greenhouse plants which retain their green foliage require practically no water or nourishment. Disregarding this natural rest results in decay of the roots, dropping of flower-buds, and often times the death of the plant. Even an excessively damp atmosphere is exceedingly harmful during the rest-season. It is important, too, to supply water sparingly while plants are starting into growth just after their rest-periods.

Signs of over-watering.—The appearance of more or less yellowish patches, sometimes only noticeable when leaves are held up against the light, and of wart or gland-like protrusions from the upper or under surface of leaves, are sure indications of superfluity of moisture, and when they are observed, watering must be decreased.

Sponging.—Sponging the leaves of such plants as *Aspidistras*, *India-rubber Plants*, etc., is highly beneficial if carefully carried out with tepid water. (Extract from "The Culture of Flowers from Seeds and Bulbs," by E. K. Toogood, F. R. H. S.)

The Poultry-Yard.

HEALTH AND INDICATIONS OF DISEASE.

When fowls are judiciously fed; made to take exercise, and their quarters kept clean, and free

from lice; there is, comparatively, no trouble in sickness except in cases of contagion.

When the fowls are busy scratching, the hens laying and singing, and the cocks crowing, these are signs of good health.

When the combs and wattles of the fowls are of a bright red color, it indicates a good condition of health.

When you can go into the henhouse after dark, and hear no wheezing, it proves that there are not any rousy fowls in the flock.

When the droppings are hard and a portion is white, it indicates a healthy condition of the digestive organs.

When the edge of the combs and wattles are of a purplish red and the movements sluggish, there is something wrong.

When fowls lie around indifferent to their surroundings; they are too fat, and death from apoplexy, indigestion, or liver trouble will result, unless the trouble is corrected.

When the fowls are restless and constantly picking their feathers, they are infested with vermin.

When young poultry, especially ducklings, appear to have sore throat and show difficulty in swallowing their food or water, it is the symptom of the large gray lice on the neck.

If a fowl has a bilious look, with alternate attacks of dysentery and constipation, it is suffering with liver trouble; a lack of grit, overfeeding and idleness, will cause this trouble.

A hospital should be a part of every poultry yard. As soon as a fowl gets ill, remove it to the hospital at once, and begin treating: The trouble, with the majority is, that they wait until disease is in an advanced state before giving medicine; a very sick fowl is difficult to cure, and when cured it is seldom of any value afterwards.

There is no reason, why we should not have strains of strictly hardy stock, and yet it seems to be a fact that contagion and a multitude of ailments continue to be the "besetting sins" of poultry in the hands of the farmer; I have repeatedly been called upon to answer queries in the diseases of poultry, and taking up the different leading poultry journals the queries we read there show that now as in the olden time, there are cases of cholera, roup, liver complaint, vertigo, apoplexy, scaly legs, bronchitis, canker, swelled head, diarrhoea, crop bound, indigestion, catarrh, egg bound, soft eggs, bumble foot, scrofulous troubles, etc., etc. I mention these as they come to my mind;

now it is well known in past experience of a personal nature, that at least two-thirds of these "besetting sins" can be avoided; and I know from the same experience, that it is possible to have a strain of strictly hardy stock. In the first place, lice cause more trouble than anything else; these miserable pest, sap the life out of the stock, both old and young; they weaken the body, and any other disease has, in consequence, easy prey; dyspepsia, or indigestion, can be avoided by the use of sharp grit; but it must be sharp, or it is not worth anything. Oyster shells will not do for grit, neither will coal ashes, something harder is required. Neglected indigestion will lead on to liver troubles. Keep the fowls free from indigestion, and liver complaint will be more rare. The combination of lice and indigestion is what makes up the average case of so called cholera. Genuine cholera is very rarely seen, I am glad to say, in this country; overfeeding is the direct cause of vertigo and apoplexy. The blood rushes to the head of the fowls, the body is sort of paralysed; death suddenly winds up the case. The result of allowing hens to become too fat leads to cases of egg bound and soft shelled eggs; where it does not reach the vertigo or apoplectic stage.

Bronchitis comes from exposure to damp or wet weather, and when neglected results in consumption (tuberculosis).

Roup, canker, distemper, and swelled head, have their origin in some neglect by which fowls catch cold.

Diarrhœa, too, follows exposure to damp, cold, and wet weather, and filthy runs and houses; or too much green food, and not enough grain are also guilty.

Sleeping in draughts or confinement in damp quarters, not only cause swelled head, but also shows itself in diphtheria or ulcerated sore throats.

Costiveness and constipation are due to continual feeding on dry food, without sufficient green stuff; also to a want of sufficient supply of pure drinking water, or too close confinement.

Rheumatism and cramp come from exposure to cold or wet weather, or roosting in damp cold houses.

Leg weakness is another penalty for overfeeding; bumble foot comes from high roosts.

Too close confinement, damp, and muddy runs, and not sufficient meat or green food, are prime causes for scaly legs. When fowls are sick, they should at once be placed in warm, dry quarters;

colds, roup and diphtheria, diarrhœa, cholera and scaly legs are contagious, and should never be allowed in healthy flocks. No matter how slight the attack of the ailment may appear to be, the bird should be isolated; over crowding is a common evil and should be avoided: nothing is to be gained; it is false economy of space. Lice more rapidly accumulate in crowded quarters. Filth is more surely to present itself, only to introduce sickness and death. The vice of feather eating owes its origin to this condition. Need I say anything about inbreeding. Some fanciers are trying to stretch a point by saying: "No harm is done."

Can any level headed man who has bred good stock of any kind hold such an opinion? I think not, will they not show that new blood is highly essential to good health by introducing it from time to time, to keep their stock of whatever kind it may be in vigorous and sound health, for the reproduction of their own best points?

Ward says consumption is the disease most carefully to be guarded against. A strain in which runs the stain of scrofula and its kindred disease, tuberculosis, will always be a constant course of care and disappointment and should not be allowed to exist, no matter what the sacrifice may cost, as it is the source of many of the different ailments to which poultry is exposed; and I hope to see the day when our government will look into the matter before it is too late, and take pains to investigate the diseases of poultry, particularly tuberculosis, with as much care and determination as they have the same disease in the dairy and take the means to exterminate it as fully as they have among the dairy herds of the Dominion.

Be careful in buying stock to get a strain that is notably free from hereditary defects as well as diseases. It has been stated that squirrel tail is sure to be reproduced in a strain tainted by tuberculosis. Wry tail is hereditary; crooked breasts, thumb marks on combs, or any peculiarity in the spikes of the comb, white face, where red is the proper color, is dangerously hereditary; earlobes splashed or marked with red, where pure white is a point, vulture hock—all these defects will be reproduced.

Birds with malformations or anything missing, such as being short of a toe, or having any peculiarities, should not be used for breeding. So, in short, to have a good and sound strain of fowls, all deformities and evils in breeding fowls must be noted; the stock must be kept free from lice,

have clean, dry and sunny quarters, must be compelled to exercise, to gain a good appetite and sharp grit to masticate the food. During cold, wet weather, the birds must not be exposed and must be equally protected from the hot suns of summer. Prevention is an art, and if you know the cause of disease, how easy it is to check it before it starts, and how hard to cure it after it has begun to root itself. So be up and doing, using every means to prevent rather than to cure disease.

S. J. ANDRES.

POULTRY ITEMS TO REMEMBER.

As soon as the cockerels get large enough to eat, begin on them. They make a most wholesome food, and are worth as much to the farmer, as to the people living in the city.

Young ducks must have water in some vessel deep enough so they can bury their heads in it above their eyes, or they will get sore eyes. This is as much water as they need.

Many are learning that it is far easier to hatch chickens than to grow them. Yet here is where the story of success or failure, will be learned. Look out for the chickens and keep them growing, from the time they are hatched up to an adult size and full growth.

Sometimes disaster comes to the eater of meat, from cattle, but I do not know of an instance in which any one ever suffered from eating poultry? It is nourishing and does not worry weak digestive organs. Chicken is one of the best things for an invalid.

The absence of cocks in the poultry pen will not affect the quantity or quality of eggs laid, but unfertilized eggs will keep the longest time, and in the best condition.

No hen can be forced to lay eggs. Nature gives her a certain period of time during which the eggs are to be developed. It is not difficult to supply

her with the needed elements for this purpose, and any surplus bestowed will only be waste.

The farmer who will take pure bred poultry of any of the good breeds and give them good care will not be disappointed. Standard bred fowls are more hardy, will lay more eggs, and will weigh more pounds when sent to market, than the mixed mongrels so commonly raised.

If you have a surplus of pure bred cockerels, advertise them at once, and sell them at once.

Pop corn contains more nitrogen and phosphates than the regular Indian corn.

Oats, rye and barley are regarded as fair substitutes for wheat to feed laying hens.

Buckwheat is an egg producing food but as a steady diet is apt to be overfattening.

Small flocks in small runs, do better than large flocks, even when they have the fullest liberty.

Eggs should sell on quality, and this means not only cleanliness, uniformity of size and color, but of unmistakable freshness.

If you have a good thing and do not let it be known it will not swell your bank account. This is especially the case in regard to poultry. It pays to advertise.

An unusual number of young beginners are inquiring the way to poultry-success of late. It is not necessary to get a full stock of pure bred. A good hearty stock of common fowls may easily be graded up in a few years; to fairly good color; size, and markings; and even to becoming prolific layers or good market fowls, by the purchase of a few pure bred cockerels.

S. J. ANDRES.



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