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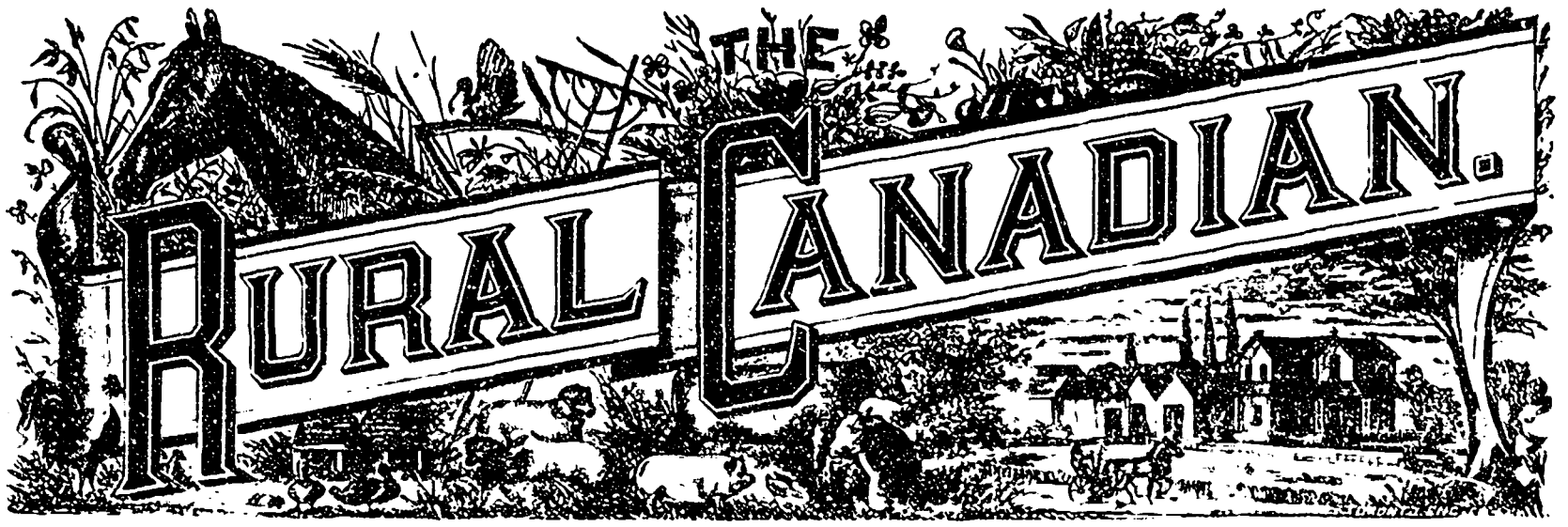
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RURAL NOTES.

THE testimony of the Western New York Farmers' Club is, that the failure of last year's apple crop was owing to cold rains at the blossoming season, followed by immense swarms of aphids.

ONE way of killing off wire worms in the land is to grow two or three successive crops of buckwheat. They can't feed on the roots, and the tops smother the grass. To grow corn, wheat or grass on infected land is only to supply the worms with food upon which they flourish.

If farmers would take the trouble to gather up and cart into their barn yards, sheds or stables, the wealth of leaves in their woods in the fall of each year, they would add largely to the bulk and the richness of their manure heaps. It would only cost the labour, and dry leaves make excellent bedding for stock.

HALF a teaspoonful of table salt dissolved in water is said to be an excellent cure for dyspepsia. It should be taken soon after rising in the morning. If the cure is as effective as it is simple, no one need suffer the terrible consciousness of "being the miserable owner of that diabolical arrangement called a stomach," as Carlyle once expressed it.

BROAD tires have many advantages for farm waggons. They are indispensable for drawing manure on land at any season, and their advantage in road use is that they improve the road bed, helping to fill up the ruts made by narrow-tired vehicles. It is probable that broad-tired waggons will in the future come into more general use for farm purposes. The wonder is that they have been so long neglected.

THE extent of the ravages of the lung plague in the United States is estimated by Professor Low at two millions to three millions of cattle annually. This is a very serious loss, and it shows how necessary it is that vigorous steps should be taken at the outbreak of such plagues to stamp them out utterly. The British Government took the right means in 1866, and though the remedy was costly it had the merit of being effective. It is better that every head of an affected herd should be slaughtered than that the plague should be permitted to establish itself and spread over the whole country.

AGRICULTURE in the present century has changed the wooden mould-board for the steel plough, the sickle for the self-binder, the flail for the separator; it has given to the husbandman labour-saving implements, almost without end. For one farmer who was considered well off a

hundred years ago, there are five hundred well off now—not relatively, perhaps, but enjoying equal comforts. Yet they are not satisfied, for they see many others in better circumstances than themselves. The rest-and-be-thankful farmer seems to be growing scarcer every day, and we think on the whole it is well that it should be so.

IN selecting corn for seed aim for length of ear, length of grain, and medium cob. These combined qualities are somewhat rare, but they are well worth looking for. Short grain from a short ear is the very poorest kind of seed, for it will reproduce its like. Another thing worth remembering in corn-growing is, to plant no more than you can thoroughly cultivate. It is absurd to plant twenty acres when by manuring and proper cultivation ten acres will produce as much. With more than you can keep clean you are sure to have a poor crop of corn and a big crop of weeds. By all means keep down the weeds; they are the bane of the farm.

WE think there is altogether too much salt-pork eaten by the farmers of Ontario. True, they can't hope to have fresh meat every day in the year, for butchers are few and far between in country places. But salt pork twice a day the year round is a monotonous diet. The boys and girls of the farm don't like it, and possibly many of them are tempted to leave the farm to get quit of it. A good fat bullock killed once a year provides an agreeable change, and every farmer should fatten at least one bullock a year for family use. Then there is the poultry yard. It costs very little to keep a hundred or two hundred hens on the farm, and what is more toothsome than a chicken fricasee, roast or broil on the farmer's table? One fowl makes a meal for a large family, and the next meal is running around until needed. Besides, there is the luxury of fresh eggs for eight or ten months of the year, and there is more nourishment in two fresh eggs than in a pound of salt pork.

A FARMER in Central Minnesota has been trying the experiment of sowing seed imported from the Red River valley. His neighbours, on the other hand have been sowing the seed they raised, or that was grown in the neighbourhood. There was no difference in the soils, or in the manner of cultivation; but the farmer who brought his seed from the Red River region found that his crop yielded an average of ten bushels per acre more than his neighbours. This is not a discovery; there is nothing new or startling about it; but all the same it is worthy of remark. Farmers as well as others require to be reminded of important facts. If some system of exchanging seed grain grown at long distances apart was estab-

lished there is no doubt that good results might be obtained. The Grange organization could easily give it practical effect, as the officers of local societies can readily communicate with each other. Exchanges say between Victoria and Kent, or Bruce and Niagara, might prove to be of great value.

EGGS have been such a good price during the past year that farmers are more than ever encouraged to pay attention to their poultry yards. The prices paid at country markets last summer were higher than the best winter prices of twenty years ago. The chief cause of this probably is that within that period, a large export trade has been built up. The trade returns of the past ten years, show a great increase, and there is every prospect of steady growth. It is the side industries of the farm that keep up the current of ready money. The surplus grain is marketed in a few days, and the cash for it comes in the lump. For that reason, perhaps, the farmer thinks that grain is alone deserving of attention. But the weekly receipts for eggs and butter would surprise him if he took the trouble to keep an account book, and foot up items at the end of the year. We say to farmers that they are sure to be well rewarded for attention paid to the poultry yard. And if they invest a few dollars in getting improved breeds they will do still better. The Hamburg hen that lays 200 or 250 eggs a year is a far better property than the "dung hill" that lays only half that number.

THERE is reason to fear that the wheat crop has been injured to some extent by changes in the weather during the past four or five weeks, especially in the western and south-western counties of the Province. The rain and thaw which continued for several days flooded many fields, and everywhere left the snow a compact mass. Suddenly on the heels of the thaw came a spell of intense cold; and instead of the warm, porous covering of the early winter there is now a solid coat of ice over all the fields, shutting out the air and keeping the plants at a low temperature. It is found that under the protection of dry snow wheat will not only remain fresh and green, but will make considerable growth throughout the winter months, it very rarely smothers. A thaw, however, is one of the things to be dreaded, especially when the snow-fall is heavy, as it has been this winter. Farmers will await with some anxiety the opening of spring. The fact that the plant got a poor start in the fall, owing to the long season of drouth, makes the outlook all the more discouraging. It is fortunate, however, that the thaw was not general throughout the Province. In all the northerly counties its effects were scarcely felt.

FARM AND FIELD.

GENERAL RULES DIRECTING THE PLOUGH.

A question every season presenting itself is whether to plough during the fall or spring. This question must be answered in each case according to the attendant circumstances. In a word no definite rule may be laid down by which to govern either the time or manner of ploughing, but each piece of land must be considered by itself, and broken up at a season and in a style best suited to its especial necessities. To decide that soil shall be ploughed spring or fall, deep or shallow, without considering the character of the soil, the locality, and the nature of the crop to be grown, is downright folly.

While judgment is required in this matter of ploughing, and every farmer must decide many questions for himself, there exist some general rules that will assist him in arriving at proper conclusions. For instance, heavy clay soil appears to require the alternate freezings and thawings of winter to pulverize it. Again, fields over-run with weeds are benefited by fall ploughing, which turns under these noxious growths with the haulm of the crop before their seed matures, and not only destroys but forces them to enrich the land they previously encumbered. The exposure of injurious insects to the weather is another condition urging fall ploughing. On the other hand, light, sandy land generally speaking, is best ploughed in the spring.

As regards the problem of deep and shallow ploughing, that must be settled by the depth of the soil and the character of the subsoil. Land that is dry with only a few inches of good soil calls for shallow ploughing, while a deep, rich soil as a rule is more productive when deeply ploughed. When the surface soil is shallow the gradual deepening of it ought to be sought by the use of appropriate materials for improvement, until the object is fully attained.

The subsoil ought not ordinarily to be brought out of its bed, except in small quantities, to be exposed to the atmosphere during the winter, or in a summer fallow; nor even then, except when suitable fertilizers are applied to put it at once into a productive condition. Soils of opposite character, as a stiff clay and sliding sand, sometimes occupy the relation of surface and subsoil to each other. When such a condition exists, deep cultivation that thoroughly incorporates the two will hardly fail to produce a soil of enhanced value. River soils, having perfect natural drainage, respond favourably to deep ploughing, as do the black, porous, and fertile limestone soils. Deep ploughing is ill-advised when a basin is formed below a certain line, in which water will settle and remain until it can escape by evaporation. Such soils require drainage, after which the plough may be set deep with advantage.

Shallow soils can and ought to be gradually deepened. These must, of course, when the subsoil is worthless, be lightly cultivated until the farmer is ready to give additional labour and expense to their improvement. But so soon as he can practise for a few years subsoiling and manuring, so soon will his shallow land become valuable, and increased crops repay him for extra expense of labour. Where all circumstances are favourable to the use of a subsoil plough an increase of crops follows, for the hard earth, below the reach of the ordinary plough, has been loosened. This permits the escape of the water which falls on the surface, the circulation of air, and a more extended range for the roots of deep-growing plants, by which they procure additional nourishment and secure the crop against drought. The benefits of subsoil ploughing are most ap-

parent in an impervious clay subsoil, and least evident in loose and leachy ones.

From the foregoing it will appear to the careful reader that thin soils with poor subsoils must be ploughed shallow, unless subsoiling and manuring are resorted to; that deep clay loams and alluvial soil bear deep ploughing, and wet lands must be drained previous to deep ploughing. The medium course—which is ploughing from five to six inches deep—is exempt from the harmful results of the two extremes.

On low or strong lands experienced farmers give the preference to a furrow left on edge exposed to the action of air and harrow. On sandy or dry soil they practise flat ploughing, which tends to consolidate the land. Experienced farmers avoid breaking up ground that is too wet, or running the plough through ground too dry. The effects in either case are pernicious. Sufficient moisture is required to cause the furrows to fall loosely from the plough with no appearance of packing and no lumps.

A VALUABLE TABLE.

5 yards wide by 968 yards long contains one acre.

10 yards wide by 484 yards long contains one acre.

20 yards wide by 242 yards long contains one acre.

40 yards wide by 121 yards long contains one acre.

80 yards wide by 60½ yards long contains one acre.

70 yards wide by 65½ yards long contains one acre.

220 feet wide by 198 feet long contains one acre.

440 feet wide by 92 feet long contains one acre.

110 feet wide by 868 feet long contains one acre.

60 feet wide by 726 feet long contains one acre.

120 feet wide by 868 feet long contains one acre.

240 feet wide by 181½ feet long contains one acre.

In laying off small lots the following measurements will be found to be both accurate and complete:

52½ feet square or 2,722½ square feet is 1-16th of an acre.

74½ feet square or 5,415 square feet is ¼th of an acre.

104½ feet square or 10,890 square feet is ½th of an acre.

120½ feet square or 14,520 square feet is ¾ths of an acre.

147½ feet square or 21,789 square feet is half of an acre.

208½ feet square or 43,560 square feet is one acre.

EVERY FARMER NOT HIS OWN CHEMIST.

In the many ways in which the agricultural chemist can serve the farmer none can be made more directly and immediately valuable than those analyses that inform him as to the quantity and the degree of solubility of the compounds of nitrogen, phosphoric acid, and potash in the fertilizers offered to him in the markets. But the cost of such service greatly narrows the range of its practical benefits. Very few farmers indeed, wishing to select the best from a number of brands, could afford to have samples of all these brands analysed, so that they might purchase intelligently, as they would a cow or a horse, with

some real knowledge of the merits of the article purchased; consequently as a general thing, the purchase is made blindly, or else on no sounder basis than recommendations by others or previous experience of their own or their neighbours with the same brand. The few Experiment Stations in this country are doing something to meet this want; but their number is too small and they are provided with too small a working force, so that they can do but a small part of what is needed in this direction, unless they neglect altogether the investigation of questions of a wider and more enduring importance. As their name implies, they are established to try experiments in agriculture, for the improvements of agricultural practice; but analyzing fertilizers is not trying experiments.

The farmer feels the need of the better knowledge, not only of these commercial fertilizers that the chemist can give him, but also, often, of materials from nearer home, such as mucks and marls; he knows that with such knowledge of their condition, as to valuable plant nutrients, he might save wasted labour over worthless ones, or be led to the development of unexpected manure mines in his own fields.

Such is the feeling of a friend in Florida, who some little time ago wished *The Tribune* to tell him how to ascertain for himself whether these materials contain any phosphoric acid, potash, or nitrogen, and whether much or little. Incidentally he asks also why a marl put in vinegar will foam; it is because the marl contains carbonate of lime, whose carbonic acid is driven off as a gas by the stronger acid of the vinegar, and the more violently the sample of marl foams under this treatment, the more carbonate of lime it contains.

Now if it were as easy a matter to find and measure ammonia, phosphoric acid, or potash, as it is to find and measure approximately carbonic acid or carbonates, it would be easy to teach our friend to be his own chemist; but it is very far from being so simple. Marl or mucks contain either no ready formed ammonia or so little, and so little potash too, as to require usually considerable chemical skill to show their presence; as the phosphoric acid in the case is somewhat better, but nevertheless professional skill is necessary here also to make out with safety the difference between the different samples. Such skill cannot be communicated through the columns of a newspaper, without the possession already of some practical knowledge of chemical manipulation on the part of the reader. Every bed of muck may contain a manure mine; there is one sure way to find it, better even than the chemist's, which is to try the muck on the land; little expense will be necessary, no harm can be done, in all probability something will be gained in better crops, and good profits may be reaped. It is always worth while to make the trial if the muck bed is easily accessible.—*Dr. G. C. Caldwell, in N. Y. Tribune.*

SOILS ADAPTED FOR HARD WOOD TREES.

Long observation and diligent research appears to have proven that mild loamy soil in which sand and lime are present in a higher degree than clay—fresh, deep, and rich in vegetable mould—is favourable to the growth of many forest trees, such as the oak. Lime is best suited for beech, ash, maples, elms, black and Austrian pines, dwarf pine and yew. A binding clay without sufficient humus is not adapted for forest trees. In the heat of summer it cracks and injures the rootlets. Soils, if rich minerally, although these yield trees of greater height and solid contents,

will, if moist, produce timber of inferior quality and less durability.

The beech requires a strong mineral soil fresh and rich in humus. Its true home is on lime, basalt and green-stone, if the soil is not too thin. It is often found with the oak on sandy-loamy deposits, if not too dry or too moist, but on poorer and lighter soils or in exposed places it grows but slowly. Its wood is usually worth less than other hard woods in the market.

The oak depends less on the kind of soil than on its quality, the amount of humus, and above all, of moisture contained in it. The best growth occurs in a deep somewhat loamy sand, or sandy loam, but it thrives well on loam or sand. Although it prefers moisture, it will not grow in marshes unless drained. In forests the oak attains greater dimensions when grown with other oaks alone; for it thrives best with the crown free, the stem sheltered and in shade, and the foot under covering. The oak also thrives well when mingled with the beech, provided the situation is not exposed or the soil shallow.

The ash and elm have much in common, are found on similar soils, and may be classed together as regards their treatment. The true home of the ash is on rich, loose, strong mineral soils, abounding in humus and even in binding ones, if fertile. Dry, poor soils are not suitable, and it requires a moist soil. The ash must have plenty of light, hence does not thrive so well in pure forests. It does well in beech forests, and may be grown with oak, maple, hazle, sycamore, elm, etc., with good results. In a word, these mixed forests yield in most cases a larger revenue than either of the varieties alone.

The maple delights in fresh, strong mineral soils, such as lime and basalt—in short, such as the beech, but do not bear so much moisture as the ash or elm. The sycamore makes greater claims on the soil in mineral strength and moisture than the maple.

In general, the effect which the soil and subsoil have on the quality of timber may be expressed scientifically as follows: The combustible tissues of timber, or those liable to decay by exposure to atmospheric or other agencies, are carbon, oxygen, hydrogen, and nitrogen. The absolutely necessary constituents of the ashes, or portions not liable to decay, are iron, potassium, sodium, etc., etc. It follows, then, that according as the percentage of combustible tissue exceeds that of the incombustible, the timber will be less durable, and for technical purposes, of less value. Therefore, soils and subsoils in which there is a fair amount of lime, potassium, silica, etc., in a word, those rich in alkalis, produce timber of the best quality; while such as contain an abundance of moisture yield timber neither of such durability nor of so high value.

SIMPLE DIARY AND ACCOUNT.

In the farmer's life there seems less need of book-keeping than in most other callings. His sales are comparatively few, and his purchases of such large articles as are well remembered by their importance, or he deals with men who keep books and he trusts them. Yet if he keeps no record he will be often perplexed to know where and for what the money went, that he received for grain, beef, wool or butter. It would also be a satisfaction for him to know each year whether his work was as well advanced as at a similar date in previous years, or whether his barns at mid-winter, or at any date, had as much fodder for stock as at a similar date in past winters.

I have kept a daily record of work and a careful account in income and expenses the past twenty-five years. I have used books of various sizes and with different methods, but like my present

way best. I have a blank book about 7 x 12 inches, and with 286 pages. On each page are thirty-seven lines below the headlines. As the book is open I use the right-hand page for a daily record of work and use one line a day, so after dating thirty lines for a month's calendar I have six or seven lines for general memoranda. I find one line will contain several items, and give room for a word about the weather or figures representing temperature. The left-hand page is for accounts, and during the past two years I find every month that the one page is room enough to give every sale and every purchase, even when I retail vegetables and buy groceries in small quantities.

As we open the book we have the history of a month before us. The pages are ruled so that two columns of dollars and cents can be placed on the right of the page, so that it is just as well to fill the page with transactions as they occur, and place the money in its proper column as received or paid out. Some credits may not have the amounts carried out. The month's accounts may in this way be ready to add up and balance, and if the income and outgo is not alike, it tells the reason why. It is best to write this book with good ink. It may be well to have other books to note the work, fertilizers, seed and harvest of any or every field. Such note-book and pencil may be in daily use, but for the main thing I like my present way best.

WHAT IS THE CONDITION OF YOUR CELLAR!

Is it damp, close, and filled with the disagreeable odours of decaying vegetables? If so, it is time you gave the matter your earnest attention, for you have in that locality the germs of disease, and yourself and family are liable to be prostrated at any moment. You think your cellar or basement is in good sanitary condition. Do you know that it is? Have you carefully examined the premises? Have you looked over the vegetables to ascertain their condition? We know that many serious illnesses have their origin in cellars, both in city and country, and we can do our readers no greater service than to urge them to see that at all times they are in a dry, sweet, wholesome condition. Why should farmers' families, living in the country, away from the pestilential vapours of cities, be so subject to attacks of malignant diseases?

There is a reason for it, and we can point it out. They arise from indifference to the observance of hygienic rules, and violation of sanitary law. Cleanliness is essential to health, and is as necessary in the country as in the city. A family living over a foul cellar is more liable to become poisoned and afflicted with illness than a city family living in a polluted atmosphere, but without a cellar or basement filled with fermenting roots and fruits. There is far more sickness in the country than there ought to be. With plenty of pure air, water, and exercise, disease ought to be kept at bay, and would be, if a better observance of certain hygienic conditions were maintained. Bad-conditioned cellars, small, close sleeping rooms, stoves—these are all agents of evil, and are fast making the homes of farmers almost as unhealthy as those of the dwellers in cities. Are not these suggestions worthy of consideration?—*Minneapolis Tribune.*

TIME AND TEMPER SAVED.

If there are any old logs or chunks lying around in the fields that are to be planted this spring, it will be profitable to remove them at once, entirely out of the field, before ploughing and planting, instead of leaving them as too many do until the ploughing is being done, and then be all

the time bothered by stopping the team to turn them out of the way as the ploughman passes around with each furrow which frets the team and driver, often, too, breaking the plough or harness and is a waste of time; so with brush and dead branches which fall from old dry trees, in the field; they cause more loss of time and waste of grain than is required to remove them entirely before the ploughing and harrowing is begun.

So with old stumps and stones; if they are too large or heavy to haul away, dig a hole by the side of them and tumble them in, cover them below the furrow depth; it will be good economy in the end.

The land will be all the better, for many yards all around, as it will be well drained, warm and dry; and all crops—grain or grass—will be found to grow more luxuriantly in such spots than in other places. Besides, better still, the temper will not be disturbed, nor the farmer riled up.

DEEP PLOUGHING THE BEST.

No process will more surely preserve the productive power of the land than deep, fine ploughing, and no other mode will do it at less expense. Bringing up new soil from below and mixing it with the upper worn soil, by thorough harrowing or rolling, is about equal to renewed soil. Then the sub-soil plough, loosening the earth to a liberal depth—say twelve to fifteen inches—allows the roots of plants to run down and spread out more than shallow soil, for nourishment and moisture; this also restores worn land.

Besides, land made mellow to this depth is not half so liable to suffer the injuries of drouth, as the moisture can rise from below in a dry time—hence plants will not feel or suffer the effects of drouth, as in shallow soil. Further, land will not suffer half so badly from excess of water and heavy rains, as the surplus water can more readily run off.

WHITEWASH EVERY YEAR.

No person who regards the health of his family should neglect to whitewash every spring. Country places, especially farm out houses, fences, etc., are generally improved in appearance by an annual coat, and it will add to their permanency more than one would imagine. It is cheap and easily applied, so that neither expense nor labour can be pleaded against it. To be durable, whitewash should be prepared in the following manner: Take the very best stone lime and slack it in a close tub, cover with a cloth to preserve the steam. Salt—as much as can be dissolved in the water used for slacking and reducing the lime—should be applied, and the whole mass carefully strained. A few pounds of wheat flour mixed as a paste may be added, and will give greater durability to the mass, especially when applied to the exterior surface of the buildings. With pure lime properly slacked and mixed almost any color may be made by the addition of pigments. Granite, slate, free-stone and other shades may be imitated, and without any detriment to the durability of the wash.—*Florida Dispatch.*

The quantity of food needed by stock varies even amongst animals of the same breed, and it necessarily varies to a greater extent among animals of different breeds. Upon this subject a farmer in England says it is sufficiently correct to reckon on a sheep consuming twenty-eight pounds of green food, an ox or cow one hundred and fifty pounds, a calf forty pounds, and a yearling eighty pounds daily. At this rate one ox or cow consumes as much as five sheep. The latter will require 10,220 pounds, or nearly five tons apiece, the former 54,750 pounds, or nearly twenty-five tons of green food, for its yearly maintenance.

GARDEN AND ORCHARD.

HOW TO MAKE A HOT-BED.

L. Purdy, in the *Ohio Farmer*, gives the following concise directions for making a hot-bed, that indispensable requisite to an early garden:

"Some gardeners make hot-beds by building a mound of manure on top of the ground, but I prefer a pit, as I think it holds moisture better. Select a place where the ground lies fair to the sun and slopes to the south and east. The north side of the garden, if the ground lies right, is a very good place. The fence opposite the hot-bed should be six feet high and made tight to keep the cold wind off. The pit should be three feet wide, fifteen inches deep, and as long as the needs of the gardener may require. After the pit is dug it should be filled full of fresh horse manure well mixed with straw, or, better still, forest leaves, which should be put under the horses and tramped well into the manure. In filling, shake the manure up well as it is forked into the pit, and then tramp solid as soon as you have six inches deep in the pit; continue in this way until you have the manure several inches above the level of the ground, then make a frame of inch boards, three feet wide and ten inches deep on the front side and sixteen inches on the back side; set the frame over the manure, and fill up outside with the dirt taken out of the pit, nearly to the top of the frame all around. Then if the manure was pretty dry, pour on several pails of warm water and cover with the glass right away, and leave it two or three days, till the heat begins to subside, then cover with soil six inches deep. This soil should be rich and mellow and dry enough to crumble easily. Then in a few hours, if the sun shines, your bed will be ready to plant.

"If any one wishes to make his own sash, he can do so by following these directions:

"Take a strip of soft wood two inches wide, cut the side pieces six feet long and the cross pieces three feet long, groove the cross pieces with a small groove plane on both edges, so as to hold the glass, have the ends of the cross pieces so as to fit down on the side pieces; then with some inch screws fasten on one end piece, then put in one row of glass and fasten on the next cross piece, and so on until it is finished. By this method the glasses are held firmly in their places and can be removed by simply loosening one screw in each cross piece.

"I will now tell you what to plant in hot beds, and when to plant it. If you have a large hot-bed you may begin by sowing lettuce and radishes and some other hardy plants, as early as the 10th of March, or earlier if the weather is moderate. Cabbage and cauliflower may also be sown at the same time, but should be transplanted into a cold frame by the middle of April. If you wish, you can sow beet seed as soon as the 25th of March, and transplant the same as cabbage. Tomatoes and other tender plants should not be sown till about six weeks before it is safe to transplant to the open ground. If you wish to raise sweet potato plants, the tubers should be covered with a mixture of garden soil and sand to the depth of an inch or so, and in a few days the plants will begin to show. They should not be planted much before the first of April, or the plants will get too large before it is safe to transplant them."

MAKE AN ASPARAGUS BED.

Asparagus is as easily raised as anything that grows in the garden, and yet it is comparatively rare to find it upon the farmer's table. The reason may be that much nonsense has been published about the difficulties of raising it, and that we have to wait two or three years for the full

maturity of the plant. It is true that a full crop will not be given in less than three years, but when the bed is once made the job is done for a dozen or twenty years. If made this fall there will be one year the less to wait. Any good, well-drained soil that will bear corn is suitable for asparagus. Put in half a cord of manure to every four square rods of ground. Work it in thoroughly. Set out one-year-old plants in rows four feet apart and two feet in the row. (Too far apart for a family bed, one foot by two is plenty far enough.) They can be kept clean with the harrow or cultivator. It should have cultivation once in two weeks through the growing season. Cover the beds with manure in the fall, and fork it under in the spring. Cultivate thoroughly through the second season and top-dress as before. The second season a few stalks may be cut in April or May, but there should be no close cutting until the third year, and this should not be continued later than the middle of June. The plant must have time to grow and recuperate in midsummer or the bed will soon fail. The secret of large fine, asparagus is abundant manure, applied in the fall every season, thorough cultivation until the tops prevent, and stopping the cutting by the middle of June. The blanched asparagus that is so popular in some markets is secured by covering the beds with sea-weed, straw, or other mulch. It is poor stuff in comparison with the long, green, tender shoots that have had the full benefit of the sunlight or a rich soil.—*Fruit Recorder*.

COMPOST FOR PLANTS.

The following is an excellent compost for house plants:

1. Good garden mould.
2. Mould from decayed turf, from a pasture or field.
3. Decomposed stable or cow-yard manure.
4. Mould from decayed leaves.
5. Sea or river sand, free from salt.
6. Peat, from the meadows, that has been exposed to frost.
7. Coarse sand or gravel.
8. Broken flower-pots, charcoal, or oyster-shells.
9. Old mortar or plastering.

Garden mould will not be needed if there is a supply of fine, decayed turf mould. About one-fifth of the pot may be filled with the drainage materials, viz., broken bits of pots, charcoal or oyster-shells. If a little meadow moss is placed over these, it will prevent the earth washing through.

VALUE OF LIQUID MANURE.

Prof. Johnston says: "The urine of man and the animals he has domesticated is the most important and valuable, though the most neglected, and the most wasted." Prof. Dana declares: "The quantity of liquid manure produced by one cow annually is equal to fertilizing one and a quarter acres of ground, producing effects as durable as do the solid evacuations. A cord of loam saturated with urine is equal to a cord of the best rotted manure. . . . If the liquid and solid evacuations, including the litter, are kept separate, and the liquid is soaked up by the loam, it has been found they will manure land in proportion, by bulk, of seven liquid to six solid, while their actual value is as two to one." The *Journal of Chemistry* contains the following testimony in regard to the value of liquid excrement: "A cow under ordinary feeding, furnishes in a year twenty thousand pounds of solid excrement, and about eight thousand pounds of liquid. The comparative money value of the two is but slightly in favour of the solid. This statement has been verified as truth over and over again. The urine

of herbivorous animals holds nearly all the secretions of the body which are capable of producing the rich nitrogenous compounds so essential as forcing or leaf-forming agents in the growth of plants. The solid holds the phosphoric acid, the lime and magnesia, which go to seeds principally; but the liquid, holding nitrogen, potash, and soda, is needed in forming the stalks and leaves. The two forms of plant nutriment should never be separated, or allowed to be wasted by neglect. The farmer who saves all the urine of his animals doubles his manurial resources every year."

A WORD FOR THE WATER-MELON.

For some reason there is a prejudice against the water-melon on the ground of its being unhealthy. By many it is regarded as a great green concern, full of colic, cholera-morbus and what not, and when a person has been made sick by eating water-melons little sympathy is expressed, for it is regarded as a case of suffering self inflicted with deliberation and full knowledge of the consequences. A writer in *Food and Health*, however, makes a plea for the water-melon and insists that, so far from being unhealthy, it will cure the sick and keep the well in good condition. He says: "I can imagine the horror of certain readers who fancy they are so peculiarly constituted that they can't eat fruit, and Water-melons. 'Mercy! I should have an attack of cholera-morbus, surely.' There is not, in my opinion, one such person in the world who would be troubled by water-melons, if taken after a fast day. It might start the sluiceway, in the case of a constipated person, who has been clogging up with bad food for days and weeks, and save life. If so, it would prove the best and safest physic in the world. Water-melon contains about ninety-five per cent. of the purest of water, and a trace of the purest sugar, and nothing has yet been discovered that furnishes so perfect and speedy a 'cure' for summer complaint as water-melon, and nothing else. Even when diarrhoea has been kept up by continued eating of ordinary food, until the disease has become chronic, this delicious beverage—for it is little more—water-melon, taken freely two or three times a day, has again and again been known to work wonders, and to 'cure' when all the usual remedies had failed."

ENRICHING ORCHARDS.

All young fruit trees, says the *Country Gentleman*, which do not make a growth of two feet for the longest shoots in a season need additional stimulating with manure. If the ground is clean and well cultivated, or if they stand in grass or happen to be encumbered with weeds, good mellow cultivation must be given them. This is the rule for young trees, and the best time, if manure is applied, is late in autumn or during winter, the earlier the better. But manure appears to do the most good on bearing trees, especially apple trees, often giving good annual crops where poor and biennial crops were previously borne. Bearing trees need not grow so rapidly as young trees, but if they do not make annual shoots at least a foot long they need more manure or both manure and cultivation. The manure may be spread broadcast in winter, covering the whole surface.

RASPBERRIES.

Prepare the soil as for strawberries. Unlike strawberries, raspberries are rather benefited by shade, if not too dense. In field culture, all but the "cap" varieties should be planted in rows five feet apart, and the plants three feet apart in the rows; the "caps" six by three and a half feet. In garden culture, plant "caps" five by three feet;

the others, three feet apart each way. In planting, expose the roots to frost, wind and sun, as little as possible, and press the earth about the plants very firmly with the feet. Do not plant on a windy day, and do not plant deep. So soon as planted, cut back the canes to within a few inches of the ground, and fall set plants should have a small mound of earth made over each plant to protect them from sudden freezing and thawing. Keep the soil loose and free of weeds throughout the season, treating all suckers as weeds, except three to five to a hill, if kept in hills, or a single row, if kept in rows, for fruiting. It is best to plant something of an assortment, as there is a difference in flavour and times of ripening.

STRAWBERRY CULTURE.

Moist but well-drained land is the best for the strawberry. Avoid the shade of trees. The soil should be thoroughly and deeply pulverized, and fertilizers used freely. In setting, do not plant deep, but press the earth very firmly about the plants. Do not plant on a windy day. Shade valuable plants with coarse litter or berry baskets, or boxes, for a few days after planting. For hill culture, plant in beds four feet wide, with alleys two feet wide between them. Plant in each bed three rows of plants fifteen inches apart, and the plants the same distance apart in the rows. For the matted-row system, plant in rows three feet apart, and the plants a foot apart in the rows. For the best results, mulching with some light material is indispensable, and should be applied just as soon as the ground has become slightly frozen, and partly or entirely removed when the ground has become "settled" in spring. It is well for all to plant at least three varieties—early, medium, and late—to expand the season to its full limits.

In ordering trees for spring planting, the nut-producing trees, such as the walnut and hickory, should not be omitted. They can be planted in rough and rocky places that would not otherwise be utilized. The demand for nuts and timber is constantly on the increase.

If you begin pruning fruit and ornamental trees and shubbery while young, and follow it up each year, you can form just such a top as you want. If your trees need spreading out, cut the young shoots off just above a bud on the outside of a shoot; and if you want to train upward, leave a bud on the upper side of the limb where you cut it off.—*Chicago Journal*.

THE *Prairie Farmer* says: "Weeds on gravel walks may be destroyed and prevented from growing again by a copious dressing of the cheapest salt. This is a better method than hand pulling, which disturbs the gravel and renders constant raking and rolling necessary. One application early in the season, and others as may be needed while the weeds are small, will keep the walks clean and bright."

THE latest plum which ripens on our grounds (nearly 43° latitude) is Coe's Late Red. Nearly one-half the crop was ripe and gathered this year about the 24th of October, and a portion still remains (first week in November) continuing to ripen in succession. In some seasons the ripening begins the middle of October, but we always have its fruit after all others have disappeared. In a few unfavourable seasons, very cold weather has prevented ripening, but usually a moderate white frost does not effect it. The tree, now twenty-five years old, is remarkable for its healthy growth and productiveness, and the fruit is quite good in quality, the flesh separating freely from the stone. It is a desirable sort where half the seasons give mature crops.

THE DAIRY.

DAIRY FARMING.

Of the three branches of dairy farming, butter making engages the attention of the largest number, and is the only one open to many farmers. It is quite possible for the owner of a half dozen cows to produce as much butter per cow, and this of as good quality, as can the manager of the best and largest factories. In many cases the butter product of the small dairy can be sold for as great a price as can that produced at the factories. In most villages or towns there is a limited demand for really choice butter at good prices. We have known cases in which small butter dairies were made extremely profitable, when they formed a part of a general system of farming. On the other hand, few branches of farming are more unsatisfactory than is butter raising as carried on on the majority of farms. Most of the butter in such cases is made in the summer months, when prices are lowest, and when all on the farm is most busy. Whether good or bad, the butter is "traded" at the village store for groceries. Vast quantities of butter do not bring the makers more than ten or twelve cents a pound.

One marked advantage of butter making over either of the other branches is that the skimmed milk is retained at home. By one of almost any of the plans for deep setting of the milk, the cream can be taken off and the milk fed while yet sweet. The value of pure, sweet skimmed milk for feeding either calves or pigs is generally much underestimated. Butter factories have never been so popular as cheese factories, and, as formerly conducted, they were open to the objection, that the milk was taken from the farm. The now popular system of collecting the cream to be made into butter at a central establishment removes this objection, and also reduces the work necessary at the former. Disposing of the milk to cheese factories, either by sale or to be made into cheese on a co-operative plan, has been and is exceedingly common. Delivery of the fresh milk requires less work, perhaps, than setting the milk for the cream to rise. Often the whey can be returned to the farm, but this has little value compared with skimmed milk. More profitable than the home manufacture of poor butter, or of good butter for a poor market, selling to cheese factories is not, usually, as profitable as selling to the best creameries. In some parts of the country—most notably, in our own observation, in Sheboygan Co., Wis.—highly satisfactory results have come from small cheese factories—often with not more than 100 cows; with inexpensive buildings and operators; the work done by proprietor, or help employed at moderate pay. Compared with the great factories, these seem like small affairs, but the proportionate profits are often as much; there is less waste of time in delivering the milk; fewer patrons to please, etc.

For many farmers, however, either a cheese or butter factory is out of the question, and home butter making is the only resort, unless milk selling for large cities or to supply neighbouring villages or towns be practicable. With growth of great cities, the demand for milk rapidly increases, and the old plan of reliance on dairies kept in the suburbs is, happily, coming into disfavour. For farmers near railway stations within forty or fifty miles of a great city, there is often no more profitable mode of disposing of milk than selling it for the city trade. Usually this involves an uncomfortably early morning delivery. Especially in winter, or with bad roads, this is a serious objection.

The business of a local milk supply dealer is a hard one, but is often quite profitable. It is a petty retail trade, involving hard work; travel

early or late, in bad weather as well as good; some bad debts will be made; any quantity of unpleasant criticism will be received. If one is willing to meet all these things, a large percentage of profit is often received.—*Breeder's Gazette*.

GOOD COWS.

"Better pay for a good cow than accept a poor one for a gift," Uncle Robert has said many times. Is argument needed? Not with experienced dairymen. A good cow is one that will make from ten to twelve pounds of butter a week for ten months in the year. A poor cow such as is kept by the average farmer in nameless sections of the country, to our knowledge will make from two to four pounds—average three—eight months in the year.

Kept up on purchased food the good cow will consume 400 hundred bundles of corn fodder or its equivalent, when kept up, worth say five cents a bundle or \$20, and one hundred bushels of meal worth fifty cents a bushel—\$50.

The poor cow will require the same amount of food if kept up, and the food purchased.

The good cow will average ten pounds of butter a week for forty weeks, or 400 pounds of butter, at present prices in the country worth thirty cents, and in market forty, making the value of the butter at thirty cents—\$120, profits including labour \$50 in one year.

The poor cow will make in thirty-two weeks an average of three pounds or ninety-six pounds of butter; allowing the same price, ninety-six pounds at thirty cents—\$28.80, making a loss on the keeping of \$41.20. How long will it take to make \$1,000.

Thousands of farmers are thus getting rich, as the boys say, "over the left," without even thinking what they are doing. Only saying, I bought that cow cheap. She was dear as a gift, if the good cow cost \$100. We have had both kinds, and those half way between these extremes. The presentation of these extremes presents the folly of many farmers in the true light.

But take medium cows, the one makes seven pounds of butter weekly forty weeks, the other six pounds for thirty-four weeks. Seven pounds for forty weeks is 280 pounds at thirty cents per pound—\$84, or a profit of \$14 above the cost of purchased food. The cow that makes six pounds for thirty-four weeks, makes 204 a year, which at thirty cents a pound amounts to \$61. She is kept at a loss of \$9.80 each year, and in ten years at a loss over the seven-pound cow of \$98; making the seven-pound-a-week cow cheaper at \$75 than the six pound cow as a gift, risk excepted. No man can afford to keep a poor cow for making butter. The best thing that can be done where one is saddled with cows that make only four or five pounds of butter a week, is to raise stock and feed it for the shambles. For this purpose short-horn bulls should be used. But the butter-making qualities may be greatly improved by crossing with Jersey, Guernsey or Ayrshire bulls, and carefully noting the escutcheons and saving for cows only those marked with the best points.—*Philadelphia Practical Farmer*.

THE *Iowa Register* rises to say: There is more real rascality perpetrated in dairymen making skimmilk and buttermilk cheese than in all the oleomargarine and sowine butter made in the United States.

FROSTS will fine the soil more perfectly than any tools of the cultivator. It not only releases the inert plant food in the soil, but makes the manure that is added more available for the crops of the next season.

HORSES AND CATTLE.

PERCHERON HORSES.

Harper's Monthly has a lengthy and exhaustive article on this subject, from which we make the following extracts:

The Percheron horse is undoubtedly the most symmetrical and powerful for his size, and possesses the finest action and greatest endurance of all the large breeds in Europe. His general type is also the most ancient of any of which we have record or tradition, and this is the principal reason why he is more "prepotent" than others in transmitting his superior qualities to his offspring.

Tradition asserts that the first great improvement in refining the large horses of France was made by Barb stallions captured from the Moors. In 1781 thousands of these fine Barb stallions were captured (for the Moors ride such only, and never mares) and distributed among the French soldiers, who, on returning to their farms, bred them to their own large native mares. The best and most uniform of this produce were then selected and coupled among themselves, the result of which, together with other well-made crosses from time

A FINE SHORTHORN COW.

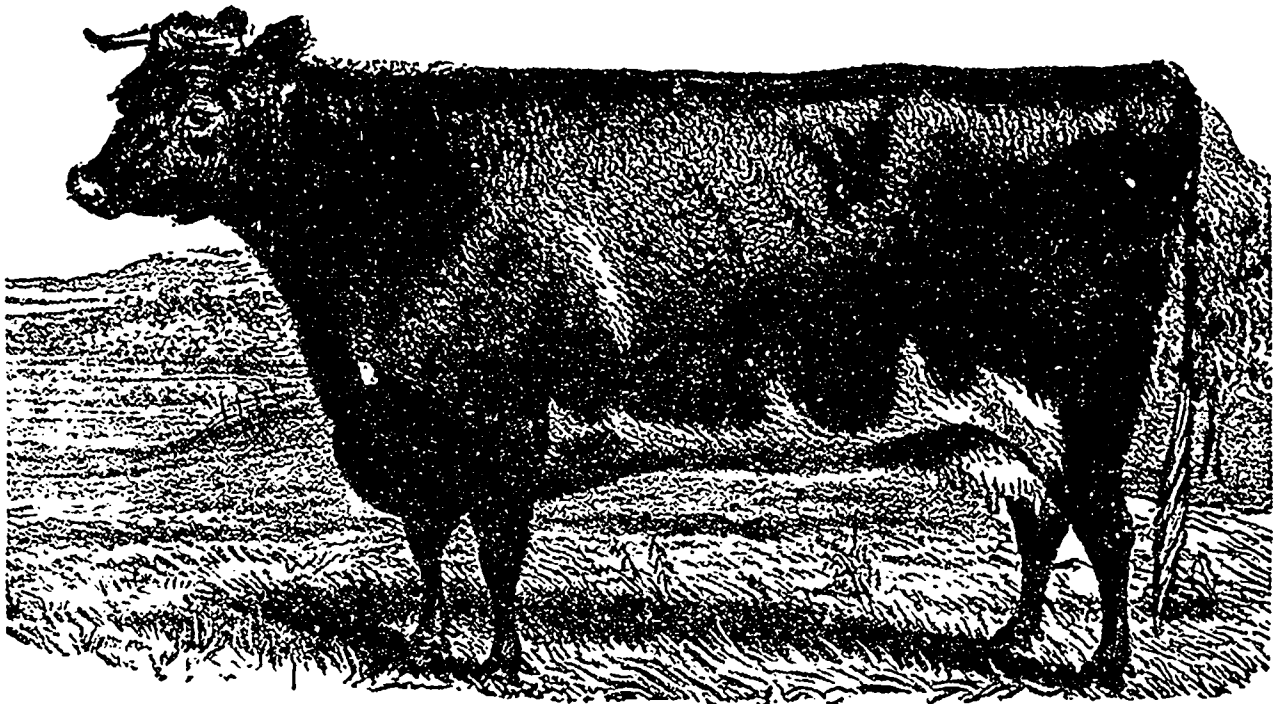
Our contemporary, the *Breeders' Gazette*, in an article on "Breeds for the Dairy," has the following on the Shorthorns: "Although the chief claim of the breed is excellence in beef production, among them are to be found many cows of great merit as milkers, and many very poor ones. We have never known better cows, all things considered, than many Shorthorns with which we have been familiar. Full-blood or grade Shorthorns can be had that will give a large flow of milk of good quality, and also be of good size and form for profitable feeding for the butcher; and their bull calves will make better steers than those of any other breeds. For the wants of the average dairy farmer, of the West certainly, we place well-selected grade Shorthorn cows as, to say the very least, the equal of those of any other class."

CALVES DURING THE EARLY SPRING.

Young things that have done exceptionally well during the past three months, will, in the same hands, undoubtedly go on to grass as young growing stock always should, namely, with pliable

They forget that calves are usually reared artificially; that is, they are, as a rule, too early deprived of their natural sustenance, the milk of the mother. This involves the necessity of substituting as nearly an equivalent as can be found. On account of the tendency to fermentation of ground foods, when given freely to young things, and the oil-cake meal being only in a slight degree, compared to some other feeds, liable to ferment in the stomach of the calf, the latter is adopted, especially in Europe, by pretty much all who rear cattle and sheep, as the most important food at their command. Especially is this true as regards their management of young stock; nor do they restrict its use to growing things, but use it freely as a basis for foods during the entire process of fattening.

Now is a good time for observing men, with judgment well matured in such matters, to look up and buy young stock to rear, as the discerning eye will see the evidences of good strains in the breeding and good care in the wintering, where these are present. Calves that have been properly cared for till February 1st are, with proper protection, easily carried through to grass, in good shape for rapid gain. Calves should be isolated



SHORTHORN COW.

to time since that period, gives us improved Percherons of the present day, described as follows.

Head clean, bony, and small for the size of the animal, ears short, mobile, erect, and fine-pointed, eyes bright, clear, large, and prominent; forehead broad; nostrils large and open. Neck a trifle short, yet harmoniously rounding to the body, and gracefully curved. Breast broad and deep, with great muscular development; shoulders sloping; withers high; back short; body well ribbed up; rump broad, long, and moderately sloping to the tail, which is attached high; quarters wide, well let down and swelling with powerful muscles. Legs flat and wide, with hard, clean bones, and extra large, strong joints, cords, and tendons; short from the hocks and knees down; pasterns upright, hoofs full size, solid, and tough. Action bold, square, free and easy. Temper kind; disposition docile, but energetic and vigorous; hardy, enduring, and long-lived; precocious; able to be put to light work at eighteen to twenty months old, possessing immense power for his size; never balking or refusing to draw at a dead pull; stylish, elegant and attractive in appearance; easy, elastic, and graceful in motion. No tendency to disease of any sort, and especially free from diseases of the legs and feet, such as spavin, splint, ring-bone, grease and founder. An easy keeper and quick feeder.

hides and oily coats—two evidences that they have not put in the whole winter without making some growth. Yet, even such as have done capitally up to February, will possibly require more attention till grass, than they have from time of grass in the fall till the present time. As winter nears its close, efforts are likely to be relaxed, in view of the near approach of the spring bite, and due attention to the bad influence of the cold rains and mud under foot, so liable to come in all except the more northerly States, be neglected.

These influences, added to a disturbed digestion, accompanied by a more or less distended abdomen, in the case of calves that have not done well during first half of winter, will call for extra care to the latter class. The coarse feed, especially straw, should be entirely ignored, no access being allowed to any other than concentrated food, except moderate allowances of fine, bright, well-cured hay. The trouble which usually comes to very young stock from feeding ground foods is indigestion, liable to overtake them through fermentation of the food given. For this reason, oil-cake meal is undoubtedly the best food in use for calves. Farmers naturally have a prejudice against buying feed for farm stock of any kind, under the belief that the grains grown upon their own farms are good enough for any animal reared thereon.

from older cattle, as their food requires to be selected and very carefully given. Even such calves as incline to play master, should be restricted in their opportunities for doing so, being fed separately.

Where shelter has not already been provided, it is not too late to attend to this important duty. As a dozen calves can find sleeping room in a covered enclosure twelve feet square, the expense of putting up an unpretending, yet warm calf-room, need be but trifling. A very serious mistake is made by many men in discontinuing the feeding of grain upon first turning to grass. There is a material loss to the strength of the calf by this practice, as the system undergoes a radical change when green grass with its abundance of water is taken into the stomach in place of the substantial dry feed to which it has been accustomed during the winter.

Under the coming system, sure to hold sway in the near future, namely, the feeding off at half the age heretofore thought proper, no owner can afford to lose time through omitting to follow up the grain and oil-cake feed on young animals. If these strong foods are required, and pay while on the dry hay, given during the absence of grass, they will pay equally as well after the latter is entered upon, and should not be discontinued till the young things have become well accustomed to this, have plenty of it, and are thriving apace.

STABLE MANAGEMENT OF HORSES.

The following hints from the *American Cultivator* will aid you in the proper care of your horses: 1. Never allow any one to tease or tickle your horse in the stable. The animal only feels the torment and does not understand the joke. Vicious habits are thus easily brought on. Let the horse's litter be dry and clean underneath as well as on top. Standing on hot fermenting manure makes the hoofs soft and brings on lameness. 3. Change the litter partially in some parts and entirely in others every morning, and brush out and clean the stall thoroughly. 4. To procure a good coat on your horse naturally, use plenty of rubbing and brushing. Plenty of "elbow grease" opens the pores, softens the skin and promotes the animal's general health. 5. Never clean a horse in his stable. The dust fouls the crib and makes him loathe his food. Use the curry-comb lightly. When used roughly it is a source of great pain. 7. Let the heels be well brushed out every night. Dirt, if allowed to cake in, causes grease and sore heels. 8. Whenever a horse is washed never leave him till he is rubbed quite dry. He will probably get a chill if neglected. 9. When a horse comes off a journey, the first thing is to walk him about till he is cool, if he is brought in hot. This prevents his taking cold. 10. The next thing is to groom him quite dry; first with a wisp of straw, and then with a brush. This removes dust, dirt, and sweat, and allows time for the stomach to recover itself and the appetite to return. 11. Also let his legs be well rubbed by the hand. Nothing so soon removes a strain. It also detects thorns or splinters, soothes the animal and enables him to feed comfortably. 12. Let the horse have some exercise every day. Otherwise he will be liable to fever or bad feet. 13. Let your horse stand loose if possible, without being tied to the manger. Pain and weariness from a confined position induce bad habits and cause swollen feet and other disorders. 14. Look often at the animal's feet and legs. Disease or wounds in those parts, if at all neglected, soon become dangerous. 15. Every night look and see if there is any stone between the hoof and the shoe. Standing on it all night the horse will be lame next morning. 16. If the horse remains in the stable his feet must be "stopped." Heat and dryness cause cracked hoofs and lameness. 17. The feet should not be "stopped" oftener than twice in the week. It will make the hoof soft and bring on corns. 18. Never allow drugs to be administered to your horse without your knowledge. They are not needed to keep the animal in health, and may do the greatest and most sudden mischief.

HORSE BREEDING BY FARMERS.

In what we had to say through these columns some time ago touching the farmer's horse and how to breed him, we discussed solely the question of how to breed the horse best adapted to the farmer's own use; the question of profit from horse breeding was not considered at all in that connection. But after all, the main question with the great mass of farmers is, How to make the most money out of the business?

It will scarcely be claimed that the model farm horse is the horse that can be bred and sold with the greatest certainty of profit to the breeder, because farmers as a rule raise their own horses—they do not buy them. True, the street car companies and the livery stables use a class of horses that differ but little from the model farm horse; but for such horses, as a rule, comparatively low prices are paid, and so the farmer will usually make the most money out of the business who breeds for the market; that is, breeds the style of

horse that sells most readily at a good price; and we have no hesitation in saying that this is the blocky, compact, quick-stepping draft horse, the heavier the better and the higher priced, so he be compact, active and sound. For such horses the demand seems to be unlimited. The country is scoured year after year by buyers in search of horses of this type for use in the heavy trucks and drays of our cities, and the man who raises horses of this type finds that he can convert them into money as readily as he can his fat steers or pigs, and at prices quite as remunerative. Good mares, such as many of our western farmers own and work on their farms, will produce horses that will fill these requirements with a considerable degree of certainty when coupled with good stallions of the French or British draft breeds, and we have no hesitation in recommending this as the most profitable line of horse breeding for the average western farmer.

TALK TO YOUR HORSE.

Some man unknown to the writer hereof has given to the world a saying that sticks: "Talk to your cow as you would to a lady." There is a world of common sense in it. There is more—there is good sound religion in it. What else is it but the language of the Bible applied to animals: "A soft answer turneth away wrath." A pleasant word to a horse in time of trouble has prevented many a disaster where the horse has learned that pleasant words mean a guaranty that danger from punishment is not imminent. One morning a big, muscular groom said to his employer: "I can't exercise that horse any more; he will bolt and run at anything he sees." The owner, a small man, and ill at the time, asked that the horse be hooked up. Stepping into the skeleton, he drove a couple of miles, and then asked the groom to station along the road such objects as the horse was afraid of. This was done, and the horse was driven by them quietly back and forth, with loose lines slapping on his back. The whole secret was in a voice that inspired confidence. The man had been frightened at everything he saw that he supposed the horse would fear. The fear went to the horse like an electric message. Then came a punishing pull on the lines with jerking and the whip. Talk to your horse as you would to your sweetheart. Do not fear but what he understands and appreciates loving tones, if not the words; while it is by no means certain that the sensitive intelligence of many a horse does not understand the latter.—*Breeder's Gazette.*

VOMITING BY A COW.

Vomiting in cattle which is a thing of rare occurrence, is due to irritation of the stomach, the nature of which varies, and is often obscure, and, if not removable or overcome, treatment is without avail. We have no means of knowing what the cause may be in this case. Among the causes are chronic induration of the stomach, various morbid conditions of the cardiac orifice of the stomach; and, as the vomiting has occurred since the cow calved, it may be due to her having eaten the afterbirth, which the stomach of herbivorous animals is not capable of digesting, and which then remains till it putrefies and gradually passes away with the food. Meanwhile, it may be a source of considerable irritation, etc. If the cause of the vomiting remains unknown, or if it cannot be removed, such as a soorihous state of the stomach, ulceration of the same, etc., then other complications of a constitutional nature will be likely to set in, and the cow gradually sink from hectic fever, etc. Treatment of such a case, when actual cause is unknown, must be very uncertain of

relief. However, with a view of lessening the irritation, the cow should have all the warm flaxseed tea she will drink—should, in fact, have nothing else to drink, and, if she will not drink it voluntarily, it should be carefully administered, say a quart at a time every two hours. She should also have, twice a day, a dose of medicine, such as the following: Take one drachm of powdered sulphate of copper, and half an ounce of powdered gentian root, to be given in half a pint of water. If vomiting becomes less frequent, one dose a day may be sufficient. Give steamed, cooked or ground feed, mixed with finely-out hay in moderate quantities.—*Breeder's Gazette.*

BUYING GOOD STOCK.

No man should buy good stock of any kind unless he has good pastures, and fairly comfortable shelter for winter. He buys, of course, with two objects in view: 1st. To replace the common with the improved, for the gratification that accrues from this; 2dly. That the profits may be enhanced. Neither object can be attained unless the animals be well kept on abundant grass in summer, and given such feed and protection in winter as will maintain quite nearly the summer condition. This is easy to do with good, healthy thoroughbreds of any breed as with the dairy cow kept in such a manner as will guarantee that she yields a profit.

COST OF RAISING CATTLE.

John D. Gillet, of Illinois, a breeder and feeder well known to those interested in cattle matters, makes the following statement of the average cost of production of a steer of twelve months old, including every needful expense from birth. It is unnecessary to say that such statement derives its value from the fact that it comes from one whose success is evidence that he has given the matter careful study and has tested his theories thoroughly by long continued practice, and fully demonstrated their correctness and value. He places the average cost of a good steer twelve months old at \$29; two-year-old at \$53; value of one-year-old, \$35; value of the two-year-old, \$104; profit on the one-year-old, \$6; profit on the two-year-old, \$50. To keep the steer another year he adds \$56 to the value of \$104 at two years, making \$160, less a saving of \$25 worth of pork from droppings, or \$135. At three years he finds the steer weighing 2,200 pounds, at 7 cents a pound, \$154, a profit of \$18 on the last year. The estimate shows a profit of \$6 on the first year, \$50 the second, and \$18 the third. If this is true the wise farmer will sell his steers at two years old.

BREEDING OFF HORNS.

We are glad to see efforts made to breed horns off cattle. Col. Ross, of Illinois, has been quite successful in this direction, by breeding a polled Norfolk bull upon his Devon cows. Horns are a relic of the savage state, and were needed for self-protection and the protection of their young. In a civilized state they are unnecessary, and cattle frequently injure one another severely with them. Anti-horns should be the motto among breeders. It is only a question of time when hornless cattle will be looked upon with more favour by the stock breeders of this country.—*Iowa Homestead.*

An enthusiastic admirer of Polled cattle says they are gentle and give no trouble unless a dog shows up. Then the dog must go. They eat, grow fat, and are not dainty, that they enter the stables quietly and in good order, and that the bulls get all or nearly all Polled calves.

SHEEP AND SWINE.

WHAT I KNOW ABOUT KEEPING SHEEP.

Last spring many people about here had "bad luck" with their sheep and lambs, some losing four or five, others fifteen or twenty sheep, and many half or more of their lambs. Now, of course, there was a good reason for this somewhere, no luck about it, certain causes produce certain results in all nature. I have been hoping to see some articles relating to the care of sheep which would help those who failed last year to better success this. I know of several cases in which I consider the cause of failure was very apparent; in some the owners have seen the cause themselves, in others have arisen grievous blunders. The worst case was that of a man keeping a flock of one hundred extra nice grade Merino ewes with lambs in a pen half its proper size, sharing one yard with two other flocks of sheep, the cows and horses, and fed on oat straw and the oats the other sheep left; because of losing more than half his lambs. He is this year fattening all his finest graded ewes for the market and intends to keep sheep of coarser grade "that he can raise lambs from."

Now, from my small experience, I have learned that sheep need plenty of early cut hay, pure water, air and exercise. At this time, and as spring advances they require much attention; it is from now until shearing time in June that the most sheep die. Those flocks that are fed in large yards and have the run of them day and night are the healthiest. Keep sheep in small flocks, in warm well ventilated pens opening into yards sufficiently large to give each sheep at least four square yards. Keep constantly by them plenty of pure water and a mixture of three parts salt to one of sulphur. When not stormy or too cold, feed out of doors in good racks or what is better when practicable, on clean snow. Three times a day morning, noon and night is sufficient to feed sheep. When feeding one kind of hay I have better success feeding only twice a day—just after sunrise, and a hour and a half or two hours, as the days lengthen before sunset. When poor hay or straw is fed with good hay, I feed straw at noon never allowing any oats when feeding good hay, and cleaning up all that is left at noon before feeding at night.

At each feeding watch for dainty ones, should there be one watch it carefully every time of feeding and if there be any signs of stretches or stoppage, the syringe should be used freely. Don't try to give physic, I never saved a sheep by it, and I never lost one where I used the syringe. All poor hay and straw should be fed out by the first of March. Sheep to lamb in March and April should be fed from March out on the best hay with a few oats and shorts. If ewes are to lamb in cold weather they should have a warm pen close enough to prevent lambs from crawling away from their mothers, as a lamb once chilled or nearly starved is hard to raise. See that lambs have plenty to eat supplying a deficiency in milk, from a new milch cow until old enough to eat grain and hay.

Through the month of April until sheep go to pasture is the best time to select and mark those sheep to be disposed of in the fall. A sheep that fails to winter well may gain at pasture before shearing time so as to look as well as any. By careful selection each spring, saving only the best and healthiest, a flock of sheep may be had in a few years that will be hardy, easy to manage, and from which there need be no losses except by the accidents incidental to all stock.

One thing more. I wish I might write so as to impress it on the minds and into the acts of every

sheep-raiser: first, use the best, largest and strongest bucks to be obtained, and second, see that every sheep, which you take from your flock, and which you consider unprofitable to winter goes to the butcher's knife and you will be improving the flocks of your fellow farmers as well as your own.

New Sharon.

O. K.

MAKING GOOD PORK.

The first thing in order to make a letter. A pork product is to secure the right breed of porkers. Tastes differ on this point. We like the small breeds, such as the Suffolks, Yorkshires and Essex. The old-fashioned ambition to make a hog weigh 500 pounds at eighteen months or two years old was not profitable to the producer, and the consumer certainly had "too much pork for a shilling." If a pig can be made to weigh 250 or 300 pounds in eight months, as the Suffolks usually do, there is a saving of a year's keeping, and the pork is of much better quality. We have eaten none other than pig pork for four years, and desire to eat no more of the big, strong sort. The Western producers are finding the best market for the small breeds, the offspring of which are fit for slaughter before Christmas, weighing, when dressed, 250 pounds on an average, and furnishing hams of about fifteen pounds weight.

The early maturity of the small breeds gives them a great advantage over the larger kinds. We have known Suffolk pigs to weigh 300 pounds at seven months. To secure this result they must be fed with skimmed milk when first weaned, mixing with it a little bran and oat meal, and gradually increasing the ration of oats till the pigs have attained such a size that it will answer to put fat on, when corn meal may be substituted gradually, for the bran and oats. There is nothing equal to milk for young pigs, but for inducing the growth the skimmed is fully as good as the pure article.—*New York Times.*

HANDLING SHEEP.

In answer to your request for the experience of sheep men, we will give our mode of handling sheep with the results. Others can use as much of it as circumstances or inclination will admit of. Twenty-two years ago we began to raise Cotswold sheep, paying twenty-five dollars for ewes and thirty dollars for a buck lamb. Having no stabling or shed to protect them from the storm, we made some rail pens, covered them with straw and chinked the cracks with the same material, which enabled us to raise one lamb to the ewe. After getting able, we built a good barn, expressly for the breeding ewes, and one for the lambs with a partition in the middle to keep the buck lambs from the ewe lambs, each lot having the run of separate pastures in day-time, all of them coming home at night to get some shelled oats and oat meal (which they relish very much), with salt once a week and plenty of good hay. Next Spring, the first of May, they will give us an average of sixteen pounds of good wool clear of tags, and the carcass will weigh about 150 pounds. The breeding ewes are kept in separate pasture, and have the run of their barn at all times. The racks are full of good hay, and they are fed one ear of corn per day, with some stock fodder to browse on. When they begin to drop their lambs, which is about the 15th of February, we feed them some oats and shelled corn, with a little oil meal, say one pint per day, with plenty of hay water and salt. As soon as they begin to show signs of lambing they are taken out of the flock and put in the lambing pens, which are four by five feet, located in the centre of the barn,

which can be made comfortable even when the mercury drops twenty degrees below zero. We never lose any by freezing. The ewes are kept in the lambing pens until they are able to take care of themselves; they are then labelled and turned into one of the large stables. The object in labelling them is to be able to tell their sire and dam. We usually save one-and-a-half to the ewe. As soon as the lambs get old enough to nibble at some oats and meal, we feed them all they will eat, which is not much at first. We wean them about the first of August. As soon as the weather begins to turn cool, we separate the bucks from the ewe lambs. About the first of September, we select the yearling ewes until we get our number, which is about eighty, all told. The culls go into a separate pasture and are led off with the wethers, and bring generally from ten to twelve dollars per head the first of March.

Our crop of wool has averaged over twelve and one half pounds for the last three years; last year twelve and three quarter pounds, and some of it clipped the 15th of April—the balance in May. We breed no ewes after they are three to four years old. Neither do they drop their lambs until they are two. We use two bucks and reserve the third to top off with.—*E. M. Reese & Son in Western Rural.*

TRAINING A RAM.

The editor of the *Texas Wool-Grower* has been telling an inquiring friend how to train that intractable creature, a belligerently inclined ram. The editor says he once had a ram that would fight any and everything. He fastened a cloth over his eyes so that he could not see in front of him. This put a stop to his fighting, but placed him at a sad disadvantage when attacked by other rams. Finally a buck herder was put on his back with a rawhide "quirt," and gave him a good five minutes thrashing, whereupon he seemed to conclude that discretion was the better part of valour, and gave no further trouble. This, the editor says, has been his plan of dealing with fractious rams ever since, and he finds it to work well. A ram will respond to a thrashing, he thinks, about as readily as any other animal.

To cure rot in sheep the following salve is recommended. Gradually dissolve four ounces best honey, to which add one-half ounce Armenian bole; then stir in two ounces of burnt alum reduced to powder, and add as much fish or train oil as will convert the mass into a salve.

A hog of the proper sort should not only be extremely wide through the shoulders and fore parts, but that great width should be carried all through the carcass, so that when fat they are just as wide through the hams as the shoulders. A broad, well-covered loin is also an essential point.

Mr. RUSSELL, of Horton, England, says the *London Farm and Home*, provides salt as well as fresh water, so that his sheep may have access to it whether the weather be wet or dry. If this were done generally those wholesale losses which are now suffered would not be experienced. Salt acts as a condiment, and is no doubt an appetizer; but it also does something more in quickening the action of the internal organic system, and preventing the generation of internal parasites.

A GOOD hog does not squeal, nor is he restless. He takes his feed quietly, goes to sleep when the meal is over, and converts it into fat. Thus the habits of the animal, its temper, and its disposition, have great influence in the matter of profit and loss. These propensities are characteristic of certain breeds, and in improving the hog should not be overlooked in the selection.

VALUABLE TRUTHS.

"If you are suffering from poor health or languishing on a bed of sickness, take cheer, for

Hop Bitters will Cure you.

"If you are simply ailing, if you feel weak and dispirited, without clearly knowing why,

Hop Bitters will Revive you.

"If you are a minister, and have over-taxed yourself with your pastoral duties, or a mother, worn out with care and work,

Hop Bitters will Restore you.

"If you are a man of business, or labourer weakened by the strain of your every-day duties, or a man of letters, toiling over your midnight work,

Hop Bitters will Strengthen you.

"If you are suffering from over eating, or drinking, any indiscretion or dissipation, or are young and growing too fast, as is often the case,

Hop Bitters will Relieve you.

"If you are in the workshop, on the farm, at the desk, anywhere, and feel that your system needs cleansing, toning, or stimulating, without intoxicating,

Hop Bitters is what you need.

"If you are old, and your blood thin and impure, pulse feeble, your nerves unsteady, and your faculties waning,

Hop Bitters will give you new Life and Vigour.

"HOP BITTERS is an elegant, healthy, and refreshing flavouring for sick-room drinks, impure water, etc., rendering them harmless, and sweetening the mouth, and cleansing the stomach."

Cleanse, Purify, and Enrich the Blood with Hop Bitters,

And you will have no sickness, or suffering, or doctor's bills to pay.

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is an Elegant, Pleasant, and Refreshing Flavouring for Sick-room Drinks, and Impure Water, rendering them harmless, sweetening the mouth, and cleansing the stomach.

Feathers, Ribbons, velvet can all be coloured to match that new hat by using the Diamond Dyes. Druggists sell any colour for 10 cts.

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"Rough on Rats." Clears out roaches, bed-bugs, flies, ants, moles, minks, gophers. 15c.

A COMMON, and often fatal, disease is Jaundice. Regulate the action of the Liver, and cleanse the blood with Burdock Blood Bitters, and the worst case may be speedily cured.

CATARRH OF THE BLADDER.

STINGING inflammation, all Kidney and Urinary Complaints, cured by "Buchu-peta." \$1.

TRYSIFELAS, Scrofula, Salt Rheum, Eruptions, and all diseases of the Skin and Blood are promptly cured by Burdock Blood Bitters. It purges all foul humours from the system, imparting strength and vigour at the same time.

THAT HUSBAND OF MINE

three times the man he was before he began using "Well's Fruit Compound." Druggists.

LITTLE HOWARD writes from Buffalo, N. Y.: "My system became greatly debilitated through arduous professional duties; suffered from nausea, sick headache, and biliousness. Tried Burdock Blood Bitters with the most beneficial effect. Am as well as ever."

Lynn, Mass., always was a good place for health, but it has become a modern Bethesda since Mrs. Lydia E. Pinkham, of 233 Western Avenue, made her great discovery of the Vegetable Compound, or panacea for the principal ills that afflict the fair creation. This differs, however, from the ancient scene of marvelous cures in this important particular: The healing agent, with all its virtues, can be sent to order by express or mail all over the world.

GEORGE KEITH, SEED MERCHANT,

My Illustrated and Descriptive Catalogue for 1888 now ready and will be mailed free to all applicants. Extraordinary inducements, and premiums to those ordering from 50 cts. to \$20 worth of seeds in one order. See catalogue.

Scientific and Useful.

COAL oil may be used for destroying insects on plants, by taking a tablespoonful of oil and mixing it with half a cupful of milk, and then diluting the mixture with two gallons of water. Apply the liquid with a syringe and afterward rinse with clear water. This substance is death to plant insects, and we have never heard of its injuring the most delicate plants when applied as here directed.

PORT-WINE jelly for the sick is made by melting one ounce of gelatine in a very little warm water; stir it when entirely dissolved in one pint of port wine, adding two ounces of sugar, a lump of gum arabic the size of a walnut, and a little grated nutmeg. Mix these well, then let them boil for about ten minutes, then strain in bowls or jelly tumblers, and when cold the jelly will be found hard and delicious.

A NICE meat stew can be made by taking pieces of mutton or veal, boiling till tender, adding a few potatoes cut small, and thickening a little with flour; first stirring the flour smooth as for gravy. Season to taste with pepper and salt. Have ready a pan of hot biscuits, open them and spread in a deep dish, and pour the stew over them. This is very nice, and more wholesome than dough boiled with meat.

A PRETTY scent sachet is of satin, eight inches square; the top is of white satin, with the initial of the owner worked in blue, the bottom is of blue satin, on which a small bunch of daisies is embroidered. There needs to be one thickness of cotton between the top and the bottom, on which the perfume powder is scattered. The edge is trimmed with lace two inches wide, very full at the corners, and the lace has for a heading blue satin ribbon plaited in shells.

SCOTCH cakes are economical so far as eggs are concerned, and, if made with care, will melt in the mouths of the children. To one pound of flour allow half a pound of butter, and a quarter of a pound of sugar; let the butter stand in a basin near the fire to soften, but not melt; when soft, rub it and the flour together, then knead in the sugar. Roll out in a sheet half an inch thick; cut out cakes about two inches square; bake until they are a light brown. Put them away in a stone jar, and they will in a day or two gather moisture enough to be soft.

THREE are people who think they cannot eat or digest anything which is made light by the use of soda or baking powder, and there really are those who cannot. For them a recipe is here given for waffles which are raised with yeast, and which will be found highly satisfactory: One quart of flour, one quart of sweet milk, five tablespoonfuls or about half a medium-sized cup of yeast, at least one teaspoonful of salt. Mix well and let it stand all night. In the morning stir in one teaspoonful of melted butter and two well beaten eggs. Bake in waffle-irons, and eat without fear of pain or distress.

A SYSTEM of common schools like the German which educates its pupils so highly justifies itself by success. Its leading features seem to be these: Care not to over-tax the children; short school-days; easy positions in their seats, and an atmosphere of freedom, so that the mind works easily in harness; short vacations for young scholars, to avoid that mental backstitching by which half that is learned in a term is forgotten in a long vacation; an economical use of every moment of school-hours, so that while the child is in school he is instructed and not left to himself; and teaching, wherever possible, not from books, but from the thing itself. To such an extent is this carried that, though every one else must pay his way, children in the company of a teacher, enter botanical gardens, museums of natural history and scientific collections, free; the teachers making use of these to instruct their pupils by the eye.

SEEDS

MY ILLUSTRATED CATALOGUE FOR 1888 containing description and prices of the best kinds of Field, Garden, and Flower Seeds mailed free to all intending purchasers upon application. It is the handsomest and most valuable catalogue published in Canada, and is valuable to all who wish to buy Farm Produce. Special attention given to preparing Greenhouses for PERMANENT PASTURE. Prices and full particulars will be found in Catalogue. WM. HENNIE, Seedsman, TORONTO

CUT THIS OUT And Enclose with your order, so that you will receive my special attention in preparing Greenhouses for permanent pasture. For full particulars see my Catalogue. M. J. G. 112 Greenway St., New York



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A NOTED BUT UNTITLED WOMAN.



Mrs. E. Pinkham - The above is a good likeness of Mrs. Lydia E. Pinkham, of Lynn, Mass., who above all other human beings may be truthfully called the "Dear Friend of Woman," as some of her correspondents love to call her. She is zealously devoted to her work, which is the outcome of a life-study, and is obliged to keep six lady assistants, to help her answer the large correspondence which daily pours in upon her, each bearing its special burden of suffering, or joy at release from it. Her Vegetable Compound is a medicine for good and not evil purposes. I have personally investigated it and am satisfied of the truth of this. On account of its proven merits, it is recommended and prescribed by the best physicians in the country. One says: "It works like a charm and saves much pain. It will cure entirely the worst form of falling of the uterus, Leucorrhoea, irregular and painful Menstruation, all Ovarian Troubles, Inflammation and Ulceration, Floodings, all Displacements and the consequent spinal weakness, and is especially adapted to the Change of Life." It permeates every portion of the system, and gives new life and vigor. It removes faintness, flatulency, destroys all craving for stimulants, and relieves weakness of the stomach. It cures Bloating, Headaches, Nervous Prostration, General Debility, Sleeplessness, Depression and Indigestion. That feeling of bearing down, causing pain, weight and backache, is always permanently cured by its use. It will at all times, and under all circumstances, act in harmony with the law that governs the female system. It costs only \$1. per bottle or six for \$5., and is sold by druggists. Any advice required as to special cases, and the names of many who have been restored to perfect health by the use of the Vegetable Compound, can be obtained by addressing Mrs. P., with stamp for reply, at her home in Lynn, Mass. For Kidney Complaint of either sex this compound is unsurpassed as abundant testimonials show. "Mrs. Pinkham's Liver Pills," says one writer, "are the best in the world for the cure of Constipation, Biliaryness and Torpidity of the liver. Her Blood Purifier works wonders in its special line and bids fair to equal the Compound in its popularity. All must respect her as an Angel of Mercy whose sole ambition is to do good to others. Philadelphia, Pa. Mrs. A. M. D.

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These premiums are all IN ADDITION to the large cash commissions paid by THE WORLD. In competing for the cash commissions and premiums, a subscription to THE SEMI-WEEKLY WORLD will be considered as equivalent to two subscriptions to THE WEEKLY WORLD.

THE WORLD takes this occasion to publicly thank all the kind friends who so promptly furnished it with names and information recently, and it begs them to consider themselves Club Agents for THE WORLD, and to remember that the Premium offers and handsome Cash Commissions apply to them as well as to other agents.

Secretaries of Masonic lodges will see the advantage of getting up clubs. Sample copies free. Address, THE NEW YORK WORLD, N. Y.

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FOR SILK, WOOL, OR COTTON. GOWN DRESSES, COATS, SCARFS, HOODS, YARN, STOCKINGS, CARPET RAGS, RIBBONS, FEATHERS, or any fabric or fancy article easily and perfectly colored to any shade. Black, Brown, Green, Blue, Scarlet, Cardinal Red, Navy Blue, Seal Brown, Olive Green, Terra Cotta and 20 other beautiful colors. Warranted Fast and Durable. Each package will color one to four lbs. of goods. If you have never used Dyes try these once. You will be delighted. Sold by druggists, or send us 10 cents and any color wanted sent post-paid. 24 colored samples and a set of fancy cards sent for 3c. stamp. WELLS, RICHARDSON & CO., Burlington, Vt.

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C. BLACKETT ROBINSON,

Jordan Street, Toronto.

Publisher.

The Rural Canadian.

TORONTO, MARCH 1st, 1883.

NEW VARIETIES OF SEED.

Every farmer knows that there is a tendency in varieties of seed to "run out," as it is called. The same variety of wheat or of potatoes, for instance, cannot continue to be grown for a succession of years on the same soil without deteriorating. A marked failure in the quality as well as in the quantity becomes noticeable, and in the end its cultivation is found to be altogether unprofitable. So well is this fact in natural history recognized that many farmers make a regular practice of changing their seed every second or third year, if not yearly—care being taken to obtain seed grown on a soil different from their own. But this plan, though having its merits, is not sufficient. It fails to perpetuate a variety. Like change of air for the invalid, its best effects are only temporary. It fails to rejuvenate, and in a few years the farmer finds that the variety itself must be changed.

Twenty-five or thirty years ago the Pinkeye potato was a great favourite. It was dry, mealy, of medium size, with healthy skin, and yielded large crops in suitable soil. But in time the Pinkeye ran out, and other varieties came successively into favour. One of the best of these has been the Early Rose, but now its race is well nigh run. The same thing may be said of spring and fall wheat, oats, barley, corn and other grains. There are, as every farmer and miller knows, great differences in the varieties of wheat—in weight, in hardness, in flour-producing qualities, in the yield per acre.

Twenty-five years ago the Fyfe wheat grown in this Province was unequalled on the continent, and the same thing may be said of two or three varieties of white winter. The old winter varieties have been supplanted altogether, and in districts where the Fyfe wheat formerly produced thirty to forty bushels per acre it now scarcely produces fifteen bushels, and the quality of the grain has greatly deteriorated. If it were possible to procure some new variety to take the place of the Fyfe, equal in yield and in flour-producing qualities to the Fyfe of a quarter of a century ago, it would be an immense boon to the country. The Clawson has added at least twenty-five per cent. to the fall wheat yield of the Province, and this means twenty-five per cent. added to the farmer's returns—a large increase to the aggregate wealth of the Province.

Considering the great importance of the subject it may be wondered why a larger number of new varieties are not introduced, and why farmers are not constantly keeping up the high average yield of their farms. The reason is that new varieties possessing all the requisite merits are difficult to produce. A thousand experiments may not yield one good result. The labours of the hybridist, no matter how skillful he may be, depend on chance for their fruits. He must possess skill in order to make experiments, but patience is as necessary as skill. To borrow a line of the old song—

"It may be for years, and it may be for never"

that he gets what he is seeking for. Yet, if he succeed, his success may be worth more than all the diamonds of Golconda. Not to himself, perhaps; for it is with the hybridist as with the in-

vantor; some shrewd dealer in seeds buys up the new variety and makes a big fortune out of it. But every farmer in the country, or on the continent, is made richer by substituting the new variety for an old and run-out one.

We think that enough has been said to show the great value which attaches to experiments in crossing different varieties of seeds with the object of producing improved varieties. It is a subject of great public interest; and considering the character of the work, its uncertainties and its possibilities, we think it is one that deserves a much larger measure of encouragement than has hitherto been bestowed upon it. A standing premium of \$5,000 or \$10,000 for new varieties of our staple grains and roots—to be awarded by a commission of specialists, subject to reasonable conditions—is one plan that might be adopted. It would no doubt induce a considerable number of men to make experiments, and the larger the number the greater the probability of some one succeeding.

The graduates of the Agricultural College as well as many other intelligent farmers in Ontario are doubtless well qualified to take such experiments in hand. The country might be recouped the cost of premiums ten thousand fold, and the successful hybridist would himself enjoy the honours as well as the reward. We commend the proposition to the Commissioner of Agriculture for consideration.

AN INVASION OF RABBITS.

The farmers of Ontario have hitherto suffered very little from the rabbit nuisance. The animal usually called by that name in this country is in reality a hare. It is known to naturalists as the northern hare, or white rabbit, and is found in the eastern portions of the continent from Virginia to the latitude of 68° north. Its length is about twenty-one inches, and it weighs five to eight pounds. In summer the general hue is reddish brown, pencilled with black on the back, and the belly white. In winter it is whitish, but the hairs are gray at the root and pale yellow in the middle. The favourite haunts of the hare are in thick woods, and its domicile the hollow trunk of a tree or other natural place of shelter. It never burrows in the ground, and its food consists of grasses, bark, leaves, young twigs, etc. It has never been regarded as an enemy to the farmer, and the game law of the Province makes the hunting, killing or taking of this animal between 1st March and 1st September an offence punishable by a fine of \$5 to \$25.

The rabbit is a much smaller animal, being about sixteen inches in length and weighing two to three pounds. The American variety, known as the American gray rabbit, has heretofore been confined mainly to the Western and South-western States. Its colour on the back is a light yellowish brown, lined with black, grayer on the sides, the rump a mixed ash-gray and black, and the belly white. Unlike the hare, its colour remains nearly uniform throughout summer and winter. It does not burrow in the ground, like the European rabbit, but hides in thick bushes, in the holes of trees, or under stones. It has a fondness for visiting clover and oat fields, gardens, nurseries of young trees, etc., like the locust, it has a voracious appetite, and devours every green thing.

In the island of Minorca, in the old Roman days, rabbits were so numerous and destructive that a contingent of the Roman army was sent to make war upon them; while in our own time they are devastating the island of New Zealand, in spite of the enforcement of rigorous laws. In the Western States, too, notably in Illinois, they are becoming a veritable plague to the farmers, doing

a vast deal of injury to young orchards and to green crops.

The prolific nature of the rabbit makes it a particularly dangerous enemy. It breeds at the age of six months, brings forth five to ten young ones at each brood, and as the period of gestation is only three weeks it may produce seven broods a year. It has been calculated that one pair may multiply in four years, or half their natural lifetime, to half a million. One estimate makes the number one and a-quarter millions; but as the young rabbit has many enemies, the male of its own species being the worst, it is doubtful if the first calculation is ever exceeded—perhaps never realized. But think of one pair of rabbits becoming half a million, or even a quarter of a million in the short space of four years! At that rate every farm in Ontario would swarm with them in less than twenty years from their first arrival.

And there seems to be no doubt about it that they have come. In some of the western counties, especially in Kent and Elgin, they are already numerous. The first was noticed about two years ago, and we are informed that in some localities the warrens have a teeming population. Whether it is the American or European variety does not appear to be accurately known. Some assert that they burrow in the ground, and others that they seek the shelter of brush-heaps or bushes. In either case their invasion is a thing to be dreaded, and prompt measures should be taken to exterminate them. It is feared that farmers are not fully alive to their real danger at the hands of this enemy.

There appears also to be a mistaken impression about the provisions of the game law, for we have heard of farmers being threatened with prosecution for killing rabbits. Chapter 200 of the Revised Statutes did make it an offence to kill or hunt hares or rabbits between 1st March and 1st September, and so also chapter eighteen of the statutes of 1878; but chapter thirty-one of the statutes of 1880 protects hares only; there is now no more protection for the rabbit than the potato bug or the rat, and he should be slain without mercy.

The reader must be very exacting who can't find much that is interesting, as well as instructive, in this number of the RURAL CANADIAN. We are arranging for a series of contributed articles, by practical agriculturists.

The *American Rural Home*, Rochester, published weekly at \$1.00, is the most attractive farm journal reaching this office. The same remarks holds good of the *Farm and Garden*, Philadelphia, which, however, is a beautiful monthly full of condensed information for the ruralist.

The *American Farm and Home*, hailing from Washington, D.C., is a new candidate for public favour. The initial number is a neat, twenty-four page paper, full of valuable reading for the farmer, stock breeder, and family circle. It is published monthly, at \$1 per annum. We shall be glad to exchange.

What to do with a faithful old horse, whose "sands of life are nearly run out," is often a puzzle to a humane owner. He does not like to sell him, at the risk of his falling into bad hands, and yet cannot afford to keep him in idleness. The *New-England Farmer* suggests that the animal might be killed after the weather becomes steadily cold, and the meat frozen and kept in some convenient place, to be chopped up from time to time for the poultry. Or he may be led or backed into a grave dug in trench form, and killed with a well-directed blow on the head from a heavy, small-faced hammer. The legs will then be gouged up under the body, and the faithful *Dobbin* will still contribute to the value of the farm as a fertilizer.

For the Rural Canadian.

A GARDEN'S PROMISE.

BY ANNIE L. JACK.

It is April, and there is a promise of spring. What does Lowell say?

"Then all comes crowdin' in 'fore you think,
Young oak leaves mist the hillside leaves with pink;
The cat-bird on the lilac bush is loud,
The orchards turn to heaps o' rosy cloud."

It was on such a morning as this that Herman and I went out to interview our quarter of an acre.

The raspberry patch was all in order, the buds shooting out, each plant tied up to a cedar picket and the ground beneath them mulched with the swamp hay that had been thrown over them in autumn. The strawberries were pushing out leaves and buds that had been safe under the snow all winter. Currant bushes, in a double row across the patch, were of that yellowish green that is uninteresting to the casual observer, but a healthy sign to the gardener.

Yes, the beets are up; little red-leaved things, and on the tender leaflets swarms the black fly. Herman goes to the woodshed and brings forward a pan of wood ashes. Ah, now they hop, skip and jump. The feathery tops of carrots are visible, and potatoes have sprouted, while the beans—"Oh, do you remember, Herman, the first time Mrs. Cattie made a garden in the next lot, how she came to me, late in the spring, and said she didn't know what was the matter with her beans? She had seen them come up so nicely, and then she nipped off the old bean that came to the top of the ground. Was it wrong? for they had withered and died. She didn't know that she had destroyed the germ, and left the poor, weak sprout to battle alone. Do you know, we have had some funny experience with beans. One year we planted a row of all split beans, to see if they would grow. They did, but were not so strong as the whole ones, though bearing and ripening better than we expected. Then, you remember the year you grew the horse beans, and the horse was fastidious, and turned up his nose; yes, actually his nose at them, though we saw a neighbour's sheep eating them, after we had given them away, and the man had been sensible enough to have them ground."

Lettuce, fit for the table; the "Cos" is best. Radishes—the turnip are tender, the long inclined to be tough. And the peas are ready for a hoe. I think few people know that this best of vegetables can be sown as soon as it is possible to get them into the ground. No need to wait till the frost is out. I know, by actual experiment, that early sowing does make a difference, even if they do not seem to grow more at first. They have, somehow, a better hold, a more rugged growth. Nothing beats "Carter's First Crop" for first sowing. Then I would have the "Wonder," and for latest, some of the late Marrowfats. But, if sown too late, or in too rich ground, they run to straw. Parsley just coming up; it is a late riser, and the thyme and marjoram and sage are breaking through.

How lovely those hyacinths are. We planted them late, and thought it a cold, dreary business; but they have fulfilled their promise, and late planting means late flowers. It is too early to transplant from the hot bed, but, the hardy annuals, though up, are safe, and pinks and carnations are the better for early setting out. Yes, that flower plot is to have quite a variety again this season. First, the bulbs planted last autumn, then the June lilies, that are dotted here and there. Close beside them I plant two gladioli, that fill the ground after they have done flowering. At the same time, I fill the bed with geraniums, putting them in thickly, and with contrasting colours, with a border of "Golden Gem"

pyrethrum. It looks a little mixed, you always say, but, when one wants everything, one must crowd, and this holds so much, and is more satisfactory, than some of the "ribbon" beds that are your pride.

IN-BREEDING.

The race horse, the various improved breeds of cattle, sheep, swine, dogs and poultry, have all been improved by in-and-in breeding, and those who have acquired fame as breeders have invariably done so by adhering to this principle. There are undoubtedly many cases where in-and-in breeding may become positively hurtful, but the judicious breeder can easily avoid them. If a breeder has an animal of peculiar excellence how can he fix and retain his excellence upon the animals he is breeding, except by following this principle? Where an animal is faulty, in-and-in breeding will just as surely fix those faults into a type as it will fix good qualities. A judicious breeder would avoid such a mistake as this, and it is the judgment that enables him to select proper animals to breed from, that is at the bottom of his success. In-breeding is absolutely necessary, and is not hurtful if the animals chosen are free from blemishes and have only good qualities to impart to their offspring. It is positively hurtful where the animals are ill-formed or lack constitution. Bad qualities can be bred into an animal just as readily as good, and in-and-in breeding will fix the one just as surely as the other.

CANADIAN PURE-BRED CATTLE.

Prof. Brown, of the Agricultural College at Guelph, has prepared a report on the cattle of Ontario, which contains some interesting statements, and it is fair to suppose that he used due care to secure accuracy. He reported 350 herds, with an average of thirteen and one-thirteenth pure-bred cattle, in the Province. It is a matter of surprise to have it stated that nine-tenths of all the pure bred bulls and six-sevenths of the cows are Shorthorns. Ayrshires rank second in numbers, 100 bulls and 300 cows being found in eleven counties. Herefords, to the number of seventy bulls and 200 cows, are found in eight counties. The Devons only number about twenty bulls and forty cows in six counties. There are small numbers of Aberdeens and Galloways, with some Jerseys, in seven counties. Prof. Brown gives high praise to the "Canadian" cow, described as "moderate-sized, milking, wiry, active animal," equal in quantity of milk to the Ayrshires, and that milk richer in quality. Of the Ayrshires he speaks in praise, but does not find the large flow of milk continue as long as in Scotland. The Devons he likes for uniform good doing, the cows giving a moderate quantity of rich milk. The steers do not mature early nor reach large size. With the Herefords he has found no trouble in breeding, no petting required. The cows only second to the Devons as good mothers; and the breed unequalled in maintaining flesh on pasture. The Shorthorns he describes as the greatest breeding cattle in the world; but, on the college farm, they have had trouble with Shorthorn bulls not being sure breeders. No other cattle have been found equal to the Shorthorns in growing while young on good pasture, and then being finished in the stall.

PLANTS MUST BE FED.

The roots of plants are mouths, and the leaves are lungs. The roots take nourishment from the soil, and the leaves absorb gases from the atmosphere. Moisture, heat and light are chemical agents which make it possible for vegetable or-

ganisms to appropriate and digest the food essential to their sustenance and growth. The vigour of life and rapidity of growth are dependent upon the quantity and quality of food and the conditions necessary to its appropriation and assimilation.

The sap of a tree, or a plant, is its blood, and like the blood of an animal it holds in solution the elements of nutrition. Thus elements are distributed to any part of the plant by the circulation of the sap (blood), and woven into living tissue by that recently discovered and wonderful vital agent, *bioplasm*. The blood of men and animals though ever so rich in the elements of nutrition, is unfit for use until it has been carried to the lungs and there combined with oxygen from the air. So the sap of trees and plants must go to the leaves and be chemically changed before it can become fit for use before it can be appropriated by the tissues.

Having said this much, it is scarcely necessary to add that, when the soil lacks any of the elements of plant food, those elements must be supplied, if a great crop is desired. "A word to the wise is sufficient."

THE *Farmer's Review* says: Prices for short-horns, we are pleased to observe, are ranging higher thus far this season, and we predict a very successful year and higher prices for 1883 than for several years previous.

The authorities of the Northern Pacific Railroad are adopting tree-planting as a defence against future snow-drifts. The company has had several gangs of planters at work during the fall, and the movement is to be kept steadily up for years, until there is a proper measure of forest protection.

NEBRASKA was the first State of the American Union that made a legal holiday for the purpose of planting trees. Since the work of tree-planting began there, a grand total of 50,000,000 trees, according to trustworthy statistics, have been set out, and they are now shading 100,000 acres of her prairie soil, to the great benefit of agriculture and the enrichment of the State.

MR. O. S. BLISS—of whom *The New-England Farmer* speaks as "so high an authority both in dairy matters and in the use of English"—recently printed the word "cheeses" when referring to the thousands seen upon the shelves of a factory, and Mr. Cheever discusses interestingly to the extent of half a column of his best type the question as to whether or not the expression is correct.

AUSTRIA supports seventy schools of agriculture with 2,200 students, and 174 agricultural evening schools with 5,500 students. France has forty-three farm schools with thirty to forty pupils at each. The Government pays the board of each pupil, and allows him seventy francs a year for clothing. Paris has three department schools of agriculture and a National Agricultural Institute. Germany has over 150 schools of agriculture, horticulture, arboriculture and viticulture. The first experimental agricultural station was established in 1852; upward of sixty are now in operation, each one having a special line of research.

THE *Mark Lane Express*, in its review of the British grain trade for the week ending March 17, says: Supplies of wheat increased, and somewhat improved in quality. Prices weak. Demand for foreign restricted, and prices unchanged. Cargoes in small demand; fifteen arrivals, four sales. Forward trade neglected. Red winter wheats lower. Flour lower; foreign in large supply. Maize declines slowly. For barley and oats, a fairly active inquiry; foreign unchanged. Sales of English wheat the last week, 462,592 bushels at \$1.31 per bushel, against 259,120 bushels at \$1.39, the corresponding period of last year.

BEES AND POULTRY.

POULTRY-RAISING FOR WOMEN.

Under the above heading *The Tribune* published last week the substance of a letter purporting to have been written by Mrs. Annie S. C. Carr, from a town in New York, in which was described her experience in hatching chickens with an incubator, which was simple, inexpensive, and successful. In the letter there was nothing which was not possible to accomplish; but there was in it a suggestion which was suppressed, as was also Mrs. Carr's address, to the effect that full particulars about the incubator would be sent to any one sending postage stamps to the — Incubation Company of —, to pay expense of sending the desired information.

The Tribune sent five letter stamps to the address given, and also, some days later, wrote to the postal authorities, asking for information about the incubator company. No reply has yet been received from the incubator company, which may be congratulating itself upon the possession of five three-cent stamps from some gullible person in an Illinois town. Meantime, *The Tribune* holds, subject to the order of the writers, or to await further developments, a number of letters, which it has been requested to forward to Mrs. Carr, who may be honest in her desire to benefit the world, but who certainly seemed to be desirous of obtaining some free advertising.

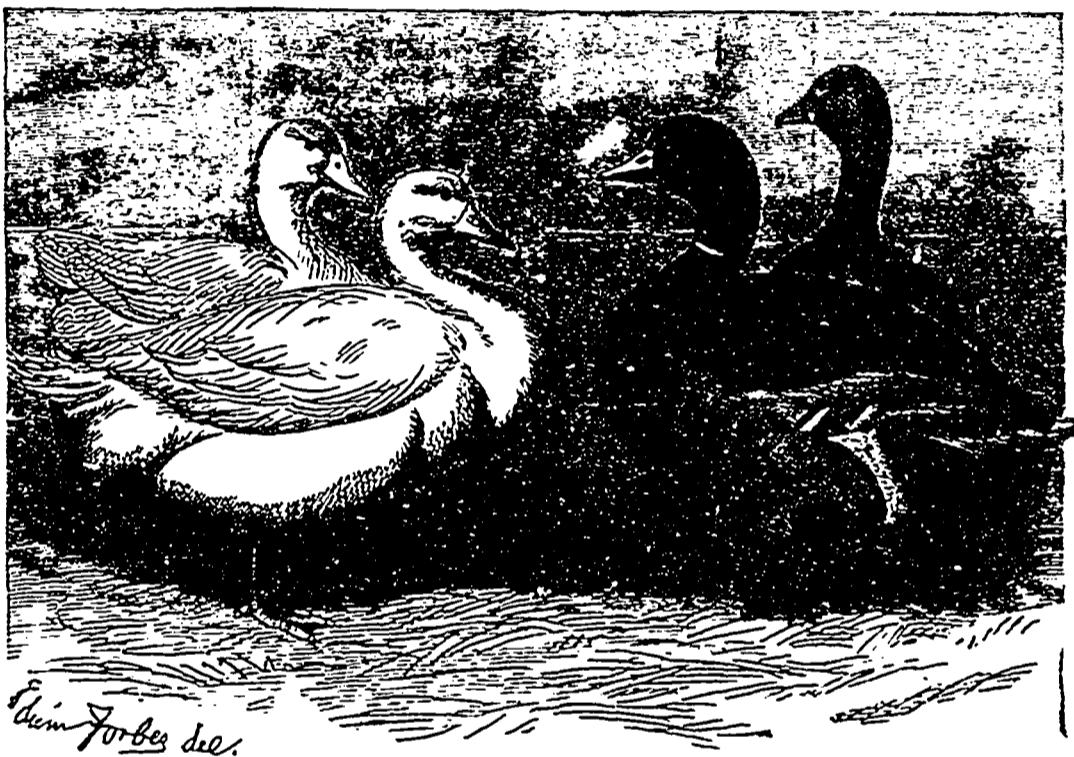
The numerous letters received within a few days after the publication of the article referred to show that a considerable interest is felt in anything which seems to offer to women an independent and moderately profitable occupation. That such occupation can be found in keeping domestic animals, poultry, and bees is certain. Instances proving the entire practicability of such operations for women are by no means hard to find. There now lives, not more than three miles from the Court House in Chicago, a woman whose herd of goats brings an income equal to the support of a small family. Another woman, who was twenty years ago robust enough to go out washing among the families in a suburban town, in a few years found herself surrounded by a herd of fifteen or twenty cows and heifers, a goodly group of gruntes, and, as she expresses it, "more chickens, turkeys, geese, and ducks, than you could count." Her income from these was greater than her husband earned in the foundry where he was employed. But she is one of those people under whose care stock of all kind, from cows to canaries, seems to thrive continuously.

Poultry raising and bee-keeping are occupations for which women seem especially fitted, by their greater patience and by their careful attention to petty, but very necessary, details which they give, but which, to most men seem too tedious to be endured. Those who wish to engage in any operation of this kind, can obtain, from well-known and trustworthy people, all the information they may need in relation to the cost of beginning, and the details of carrying on the work. Every reputable dealer in incubators, in eggs, in

breeding poultry, in bees or in hives, will gladly try to so direct beginners as to help them to become successful, and, therefore, profitable customers.—*Chicago Tribune.*

AYLESBURY AND ROUEN DUCKS.

The Aylesbury Duck is a large breed, weighing seventeen to eighteen pounds to the pair; in colour both sexes are pure white, with broad, pale flesh-coloured bills, which should not show any dark marks or stains. Aylesburys, if well fed, are good layers; the eggs laid by the best strains being pure white. They are inclined to become over-fat, in which condition both sexes are sterile. These ducks are largely raised and fattened for the London markets by the farmers of the neighbourhood of Aylesbury; being sent to market, when properly managed, at eight or ten weeks of age. By careful feeding they may be induced to begin laying by Christmas, when their eggs are set under hens, and the ducklings kept rapidly growing until ready for market.



The name of the Rouen duck is supposed to be a corruption of the word roan, since the origin of the breed has no connection with the city of Rouen, as its name would indicate, while the word roan, or gray, would well describe its colour. The Rouen duck is simply the wild Mallard domesticated, and enlarged during the process of domestication; the colouring of its plumage being almost identical with that of the Mallard, so nearly so, in fact, that "the markings of the wild species are considered as the criteria of perfection by the judges and fanciers of the present day," while the interbreeding of the Rouen and the Mallard has no effect upon the markings of the former, and its size returns after the third or fourth cross. Rouen ducks have, like Toulouse geese, an abdominal protuberance, which sometimes becomes so developed in over-fat specimens as to drag upon the ground, to the detriment of the feathers. They are very hardy, dull and lethargic in their movements, caring little for water except to drink. They reach a large size, weighing eighteen to nineteen pounds to the pair. As egg producers they are excellent, laying a large number of thick-shelled eggs, which should average three ounces and a half in weight.

Let small chicks have pretty full liberty. Exercise is natural to them; besides they will stand a better chance to rid themselves from lice that have come to them from the mother hen.

HALF-POUND SECTIONS.

Apiarists who produce honey extensively and are obliged to ship it a distance to market, will find the half-pound package "a jewel," and will have to endure no loss for breakage; the consignee will be equally blessed by receiving a neat and saleable shipment. Small sections are the more expensive for the amount of honey gained. The smaller the divisions of the surplus chamber, thus dividing the bees into small bunches, the greater the disadvantage and hindrance to the bees at work. They cannot produce as much honey as in the large sections (so we have been taught). Still, we have had a dozen bees, when confined in a small box, build comb wherever the temperature suited; and it may be that if we could regulate the temperature, as good results would be obtained.

In the season of 1882 a number of trials of the half-pound section were made, which brought them into general notice, and the honey produced in them was sold in the Boston market at, at least,

five cents more per pound than the one-pound package. This market pays gilt-edged prices for all luxuries; but the excessive price of these dainty packages was probably due to their novelty and scarcity. We can hardly depend upon such prices in future, when an abundant supply of all sizes are in display.—*Beekeeper's Guide.*

FAT HENS.

A correspondent of the *New York Tribune* says: "Fat hens are proverbially poor layers, and when age and obesity are combined the birds often think they lay when they don't, and cackle, and even carry the hallucination so far as

to become broody. This is one of the many curious little incidents occurring in poultry-keeping, which are interesting as phenomena, but which cannot be explained except on general principles. Fatness and reproduction are incompatible as a rule, especially with hens after their first year. A 'very fat' hen over two years old had better be utilized in the soup pot or on the roasting spit. Carbonaceous food like corn, should be administered to adult fowls quite sparingly, unless the object be to fatten them. Oats, buckwheat, vegetables and plenty of broken bones or oyster shells is the food for laying hens."

The best time for shipping bees any great distance is in April or quite early in May, before the combs are too heavy with brood; though with proper care in preparing and ordinary usage in handling them, they may be shipped at any time with comparative safety, except in quite cold weather.

A CORRESPONDENT of the *Beekeeper's Magazine*, whose apiary is at Olean, N. Y., gives the following advice to those who use shallow frame hives: "Arrange the hives always to face the east or south. I first build a bench large enough to hold four hives, by driving stakes in the ground and siding up all around, and cover the top so that the hives will incline to the front enough to carry the water off in that direction, and about eight inches from the ground."

HOME CIRCLE.

BY NEIGHBOUR'S WELL.

I would they'd come again, John,
Those days when we were young
By neighbour's well; ah! then, John,
We sat whole evenings long.
The silent moon we watched o'erhead
From out the white clouds peep,
And talked of how the heavens were high,
And how the well was deep.

Just think how still that was, John—
The world all hushed to rest—
'Tis thus no more, alas! John,
Or just in dreams at best.
And when some distant shepherd's song
Thrilled o'er the moorland lone,
Oh, John, 'twas music that indeed,
What sweeter ever known?

Sometimes at eventide, John,
I feel my heart still swell,
As when once side by side John,
We sat by neighbour's well.
Then eagerly I turned me round,
As though you still were by;
Ah, John, the only thing I find
Is—that I stand and cry!

—(From the Low German) Temple Bar.

A ROMANCE OF HOUSE CLEANING.

"Is she coming to visit you?" said Eric Hale with a slight grimace. "That simpering fine lady, with the useless white hands and the shallow little society laugh? Oh, Aunt Delia, pack my portmanteau and let me be off on a lecturing tour, until Flora Lee's visit comes to an end!"

Mrs. Dove looked a little disappointed. To confess the truth, she had specially arranged this visit with reference to her nephew Eric.

"He's a fine young fellow," she had said to herself, with true diplomacy, "with an excellent parish, and fine prospects—and it's high time he was settled in life with a wife. And I think Flora Lee would suit him exactly."

And here was the young man himself upsetting this charming little castle-in-the-air without the least scruple of conscience, like the modern iconoclast that he was.

"Well, Eric," said Mrs. Dove, despairingly, "I'll write to her not to come. Of course I don't want to put you out, just when you're so busy, too, with that course of lectures on the Book of Revelation—but I really thought Flora would make the house lively."

"She's a deal too artificial to suit me," said Eric Hale. "Ask her to come in June, when I shall be off to Omaha and Nevada on that conference business. But as for a visitor, I should prefer little Polly Peppercorn's big wax doll with the silky black hair and staring eyes, to that open and shut by machinery."

So Mrs. Dove choked back her disappointment (for she had been nursing this pet scheme in secret for a long while), sat down and wrote a letter to her friend Miss Lee, postponing the proposed visit to Cedarbough Farm until roses should be in bloom, and strawberries beginning to ripen.

"Adonijah," said she to the hired man, "take this letter to the postoffice."

"Yes, 'um," said Adonijah, and he put it in his pocket and straightway forgot all about it.

It was a dismal, rainy morning in April, the yellow jonquils beaten to the ground, the very wild violets shutting up their eyes as if in unmitigated disgust at the unpromising state of the weather. Overhead, racks of gray cloud scudded across the heavens, and the little sheet of silver lakelet under the hill was dotted and dimpled all over with the falling rain, as if pierced with a thousand tiny javelins.

"It's no use trying," said Mrs. Dove plaintively, "the fates have conspired against me!"

The carpets were up, the pails of whitewash stood steaming in the middle of the parlour floor, and Mrs. Dove herself, with her gray curls tied up in a yellow damask pocket handkerchief, which

her great uncle had brought from China half a century ago, sat crying on the lower edge of a step-ladder. For Betsey, the help, had fallen down the cellar stairs and broken her leg, and Mrs. Mulrony, the charwoman, had sent a message that her eldest son had broken out "wid de maizles, sure—speckled all over like a shower of red pepper, and sorra a bit of clanin' could she undertake for until the wake's over."

"And these three days of all others," sighed Mrs. Dove, "when Eric had exchanged pulpits with Mr. Washburne! And he so dislikes house cleaning, and—"

"Dear me, Mrs. Dove, what is the matter?"

Mrs. Dove started to her feet with a little scream—for there, exactly as if she had been rained down out of the gray zenith, stood Flora Lee herself, in a trim brown travelling dress, with a neat little handbag, a gossamer water-proof cloak and a silk umbrella.

"Why, Flora," cried she, "how came you here?"

"By the train, of course," said Miss Lee, "and I walked from the station."

"I wrote you not to come," said Mrs. Dove, in consternation.

"But I never received any such letter," said Miss Lee. "Shall I go again?"

"No, you darling, you shall do nothing of the sort!" said Mrs. Dove, enthusiastically. "It was only because—because we were house-cleaning."

"I'm not afraid of house-cleaning," said Flora. "I see how it is," with a comprehensive glance around the scene of confusion, "and I'm going to help you through with it."

"You?" said Mrs. Dove.

"Yes, I!" said Flora. "Why not? Just lend me one of Betsey's old dresses. Where is Betsey, by the way?"

"Her father has just carried her home in the waggon," said Mrs. Dove. "She broke her leg."

"And your charwoman!"

"Oh, dear! oh, dear!" said Mrs. Dove, "She has got a visitation of the measles, or smallpox, or some other horrid disease in her family. And my nephew, Eric, is to be gone for three days; and I made sure I could finish the house-cleaning while he was absent."

"And we will," said Flora, cheerily.

"How can we?"

"Oh, you shall see!" nodded Miss Lee.

And, depressed though she was, Mrs. Dove began to feel the mercury rise in her mental thermometer at once.

And Flora Lee arrayed herself in one of Betsey's cast-off calicoes, tied her rippled brown tresses up in a cambric sweeping-cap, and went vigorously to work with a scrubbing-brush; while Mrs. Dove bent her attention to the window glass, and Adonijah, with more zeal than discretion, splashed whitewash over himself and the floor with laudable impartiality.

"Wal," said Adonijah, afterward, "I never did see no cricket work spryer than that city young lady. By gracious, she beats Betsey all holler at it! And she's got such an up an' down pretty way of coin' things, too. I declare, I couldn't hardly take my eyes off her all the time I was in whitewashin'!"

Mrs. Dove, however, was unused to the severe exertions incident upon house-cleaning time, and went to bed with the sick headache in the middle of the afternoon.

"Never mind, Mrs. Dove," said Flora; "I'll get tea and make some of those cream waffles and a short-cake for Mr. Dove, and you shall see how nicely I can fry oysters."

"Indeed, indeed, I don't know what I should do without you Flora!" said Mrs. Dove, fervently.

But, as it happened, Mr. Daniel Dove was unexpectedly detained on business at Whiskill, a neighbouring town, and instead of him, who should walk debonairly into the little sitting room, flinging down his carpet-bag, but Eric Hale himself, just as the rainy dusk closed in, and the odour of the delicious oysters and the Mocha coffee filled the house.

"Hello!" said Eric. "So you're cleaning house—eh, Betsey?"

"Yes, sir," a demure voice responded from the kitchen.

"And where's my aunt?"

"She has retired with a sick headache."

"The natural consequence of cleaning house, I suppose," said Eric Hale with a shrug of his shoulders. "Dear old Aunt Delia! why couldn't she be contented to leave things as they were? Tell her, Betsey, that Washburne has concluded not to exchange until next week, and, that, now I'm in the midst of the *mêlée*, I'll lend a hand with this business to-morrow."

"Yes, sir."

"And Betsey—"

"Sir?"

"Where did you learn to make such delicious coffee? Bring in a cup at once, I'm ready to drop with weariness; and it is like a dream of Arabia."

And Flora Lee, with the flapping edge of her sunbonnet concealing the amused dimples around her mouth, brought in the oysters and coffee, flanked by a pile of feather-light waffles.

"I declare, Betsey," cried the Reverend Eric, facetiously, "if you were a trifle younger and prettier, I'd marry you myself to make sure of coffee and waffles like this every night."

"Would you, sir?" said the *soi-disant* Betsey.

"And we'll make a compact, Betsey," merrily went on the clergyman, as he helped himself to butter, "to finish the house-cleaning ourselves to-morrow, and save Aunt Delia the worry and work of it."

"Yes, sir," said Betsey. "But, please, sir, it's all done, except the tacking down of the carpets."

"Who did it?"

"I, sir, please, and Mrs. Dove, and Adonijah. And please, sir, I'm going to finish it myself to-morrow; and please, sir," flinging back her sunbonnet and disclosing a coronal of brown braids, a pair of very rosy cheeks, and eyes full of sparkling hazel mischief—"I'm not Betsey at all, but Flora Lee, entirely at your service!"

The Reverend Eric stared with round-eyed surprise, not unmingled with dismay.

"Miss Lee!" he repeated.

"Exactly," nodded the young lady.

"Did you make the coffee?"

"I did."

"And fry these brown-jacketed oysters, and stir up these waffles?"

"No one else, Mr. Hale."

"And scrub these rooms?" glancing around.

"Yes, sir; 'nd dusted the cornices, and washed the window glass, and took down all the picture frames, and put the lace curtains in soak, beside other items to numerous to mention," mischievously added Flora, rather enjoying the discomfiture of the young clergyman.

"Miss Lee," said Eric, "I beg your pardon."

"What for, Mr. Hale?"

"For always having regarded you as the most useless of creatures. I recant. I own that you are equal to any emergency."

And when, later in the evening, Mrs. Dove crept out, with her head tied up in eau de cologne, she found her nephew and Flora Lee playing chess together by the fire in the most amicable manner imaginable.

"It's all right," said Mrs. Dove to herself.

It was all right. And Mrs. Eric Hale won her frank, unconventional husband, not through the modium of dress, or jewels, or waltzes, or flower-shows, but through the grim realities of cleaning house.

"I wanted a genuine helpmeet," said the Reverend Eric, "and I got one."—*Family Monthly.*

I'll Take You Home Again, Kathleen.

Words and Music by THOMAS P. WESTENDORF.

Andanto Con Espressione.

Piano. *mf*

With Feeling.

1. I'll take you home a - gain, Kath-leen,
2. I know you love me, Kath-leen, dear,
3. To that dear home be - yond the sea,

A - cross the o - cean wild and wide,
Your heart was ev - er fond and true;
My Kath - - leen shall a - gain re - turn,

To
I
And

where your heart has ev - er been,
al - ways feel when you are near,
when thy old friends wel - come thee,

Since first you were my bon - ny bride.
That life holds noth - ing dear but you.
Thy lov - ing heart will cease to yearn.

The
The
Where

ro - ses all have left your cheek,
smiles that once you gave to me,
laughs the lit - tle sil - ver stream,

I've watched them fade a - way and die;
I scarce - ly ev - er see them now,
Be - side your moth - er's hum - ble cot,

Your
Tho'
And

f *p*

voice is sad when'er you speak, And tears be - dim your lov - ing eyes.
 ma - ny, ma - ny times I see A dark - ning sha - dow on your brow.
 bright - est rays of sun - shine gleam, There all your grief will be for - got.

CHORUS.

SOP. Oh! I will take you back, Kathleen, To where your heart will feel no pain, And
 ALTO. Oh! Take you back, Kathleen, Heart will feel no pain,
 TENOR. Oh! Take you back, Kathleen, Heart will feel no pain,
 BASS. Oh! Take you back, Kathleen, Heart will feel no pain,
 PIANO. Musical accompaniment for the chorus.

when the fields are fresh and green, I'll take you to your home a - gain.
 Fields are fresh and green, Take you to your home a - gain, home a - gain.
 Fields are fresh and green, Take you to your home a - gain, home a - gain.

I'll take You home again, Kathleen ca.

YOUNG CANADA.

GOOD-NIGHT.

A fair little girl sat under a tree,
Sewing as long as her eyes could see;
Then smoothed her work, and folded it right,
And said, "Dear work, good-night, good-night."

Such a number of rooks came over her head,
Crying, "Caw, caw," on their way to bed;
She said, as she watched their curious flight,
"Little black things, good-night, good-night."

The horses neighed, and the oxen lowed,
The sheep's "Bleat, bleat," came over the road,
All seeming to say, with a quiet delight,
"Good little girl, good-night, good-night."

She did not say to the sun, "Good-night,"
Though she saw him there, like a ball of light;
For she knew he had God's time to keep
All over the world, and never could sleep.

The tall pink fox-glove bowed his head,
The violet curtsied, and went to bed;
And good little Lucy tied up her hair,
And said, on her knees, her favourite prayer.

And while on her pillow she softly lay,
She knew nothing more till again it was day—
And all things said to the beautiful sun,
"Good-morning, good-morning; our work is begun."

—Lord Houghton.

THE HEROINE OF A FISHING VILLAGE.

Until she was nineteen years old, Dorothy lived a very uneventful life; for one week was much the same as another in the placid existence of the village. On Sabbath morning, when the church bells began to ring, you would meet her walking over the moor with a springy step. Her shawl was gray, and her dress was of the most pronounced colour that could be bought in the market town. Her brown hair was gathered in a net, and her calm eyes looked from under an old-fashioned bonnet of straw. Her feet were always bare, but she carried her shoes and stockings slung over her shoulder. When she got near the church she sat down in the shade of a hedge and put them on; then she walked the rest of the distance with a cramped and civilized gait. On the Monday mornings early she carried the water from the well. Her great "skeel" was poised easily on her head; and, as she strode along singing lightly without shaking a drop of water over the edge of her pail, you could see how she had come by her erect carriage. When the boat came in, she went to the beach and helped to carry the baskets of fish to the cart. She was then dressed in a sort of thick flannel blouse and a singular quantity of brief petticoats. Her head was bare, and she looked far better than in her Sabbath clothes. If the morning was fine she sat out in the sun and baited the lines, all the while lilting old country songs in her guttural dialect. In the evenings she would spend some time chatting with other lasses in the Row; but she never had a very long spell of that pastime, for she had to be at work winter and summer by about five or six in the morning. The fisher-folk do not waste many candles by keeping late hours. She was very healthy and powerful, very ignorant, and very modest. Had she lived by one of the big harbours, where fleets of boats come in, she might have been as rough and brazen as the girls often are in these places. But in her secluded little village the ways of the people were old-fashioned and decorous, and girls were very restrained in their manners.

No one would have taken her to be anything more than an ordinary country girl, had not a chance enabled her to show herself full of bravery and resource.

Every boat in the village went away north one evening, and not a man remained in the Row excepting three very old fellows, who were long past work of any kind. When a fisherman grows helpless with age he is kept by his own people, and his days are passed in quietly smoking on the kitchen settle, or in looking dimly out over the sea from the bench at the door. But a man must be sorely "failed" before he is reduced to idleness, and able to do nothing that needs strength. A southerly gale, with a southerly sea, came away in the night, and the boats could not beat down from northward. By daylight they were all safe in a harbour about eighteen miles north of the village. The sea grew worse and worse, till the usual clouds of foam flew against the houses or skimmed away into the fields beyond. When the wind reached its height the sounds it made in the hollows were like distant firing of small arms, and the waves in the hollow rocks seemed to shake the ground over the cliffs. A little schooner came around the point, running before the sea. She might have got clear away, because it was easy enough for her, had she clawed a short way out, risking the beam sea, to have made the harbour where the fishers were. But the skipper kept her close in, and presently she struck on a long tongue of rocks that trended far out eastward. The tops of her masts seemed nearly to meet, so it appeared as if she had broken her back. The seas flew sheer over her, and the men had to climb into the rigging. All the women were watching and waiting to see her go to pieces. There was no chance of getting a boat out, so the helpless villagers waited to see the men drown; and the women cried in their shrill, piteous manner. Dorothy said, "Will she break up in an hour? If I thowt she could hing there I would be away for the life-boat." But the old men said, "You can never cross the burn." Four miles south, behind the point, there was a village where a life-boat was kept; but just half way a stream ran into the sea, and across this stream there was only a plank bridge. Half a mile below the bridge the water spread far over the broad sand and became very shallow and wide. Dorothy spoke no more, except to say, "I'll away." She ran across the moor for a mile, and then scrambled down to the sand so that the tearing wind might not impede her. It was dangerous work for the next mile. Every yard of the way she had to splash through the foam, because the great waves were rolling up very nearly to the foot of the cliffs. An extra strong sea might have caught her off her feet, but she did not think of that; she only thought of saving her breath by escaping the direct onslaught of the wind. When she came to the mouth of the burn her heart failed her for a little. There were three quarters of a mile of water covered with creamy foam, and she did not know but that she might be taken out of her depth. Yet she determined to risk, and plunged in at a run. The sand was hard under foot, but, as she said, when the piled

foam came softly up to her waist she "felt gey funny." Half way across she stumbled into a hole caused by a swirling eddy, and she thought all was over; but her nerve never failed her, and she struggled till she got a footing again. When she reached the hard ground she was wet to the neck. Her clothes troubled her with their weight in crossing the moor, so she put off all she did not need and pressed forward again. Presently she reached the house where the coxswain of the life-boat lived. She gasped out, "The schooner! On the Letch! Norrad."

The coxswain, who had seen the schooner go past, knew what was the matter. He said "Here, wife, look after the lass," and ran out. The "lass" needed looking after, for she had fainted. But her work was well done; the life-boat went round the point, ran north, and took six men ashore from the schooner. The captain had been washed overboard, but the others were saved by Dorothy's daring and endurance. The girl is as simple as ever, and she knows nothing whatever about Grace Darling. If she were offered any reward she would probably wonder why she should receive one.

FEAR AND BRAVERY.

It is said that the Emperor Charles the Fifth, reading an epitaph, "Here lies one who never knew fear," remarked, "Then he never snuffed a candle with his fingers." It is certainly a somewhat absurd, though a favourite, claim for a popular hero, that "he never knew fear." No one possessing human nerves and human brain can say this with truth. That a brave man never yields to the emotion may be true enough; but to say that at no period of his life he experienced fear, is simply impossible. There is a story of a young recruit in the thirty years war going into action for the first time in his life in the highest spirits. "Look at Johann," said one of his comrades, as the troops were drawn up ready to charge. "He is full of jokes; how brave he is." The veteran addressed replied, "Not at all, he knows nothing of what is coming. You and I, old comrade, are far braver, we sit on our horses though we are terribly afraid." Fear is certainly one of the most irrational of passions. It is not always excited by the presence of danger. Men who can always be cool and collected in cases of real peril will tremble at some fanciful alarm. The Duke of Schomberg could face an enemy with ready courage, but fled from a room if he saw a cat in it. A very brave French officer fainted at the sight of a mouse. The author of the "Turkish Spy" states that had he a sword in his hand he would rather encounter a lion in the desert than be alone in a room with a spider. Many people have similar fanciful antipathies, which excite their fears in a manner real danger would be powerless to do. Fear of infection is a dread which embitters the lives of many sensible people. There is a legend of an eastern dervish who, knowing that a plague was about to visit a certain city, bargained with the disease that only a specified number of victims should fall. When twice the number perished the plague explained its apparent breach of contract by asserting, "Fear killed the rest." In all times of epidemics doctors can tell the same.

TOD'S ADVENTURES.

From the beginning of his life Tod was a most unfortunate cat. When he was three days old his mother pushed him out of the basket and growled at him fiercely.

The children settled his career by calling him homely, and no one ever noticed, as time went on, that he was the first to wash his face, to find his claws and play with his tail.

Both his sisters had golden-coloured eyes, but Tod's were a faded blue. Then, though he was black and white like the rest, his spots had provokingly settled in the most unbecoming places; one on the tip of his tail, one on his nose, and the rest hit or miss over his body.

It wasn't natural that any cat should endure such snubbing as he received. He had a good conscience, and knew he had always made less trouble than his two sister pussies. He gave up many a nice dish for them, and he would sit thinking when they were at play. This was another thing against him. They said he hadn't any fun in him, and was just a homely, poky kitten. Tod couldn't help two unbecoming tears at that. His mother told him to get out of the sun or his eyes would be weak, and his sisters stared at him till he went off by himself and wanted to die or run away.

He crept out in the yard after a time, feeling very wretched indeed. The children tormented him

from morning till night; he had to sleep in the cold corner of the basket, scarcely had enough to eat, while he heard vague suggestions of rivers and water casks that filled him with terror. So he decided to run away. It was a cold December morning that Tod set out to find a home. Dogs teased him, teams frightened him, boys stoned him, but Tod kept resolutely on through the snow for a mile. Then, safe from the city noises, he sat down to think. He had never been more than presentable as to appearance, and now with one ear torn, a lame foot, and tufts of fur missing, the prospect of a welcome any-

where was not over probable. Besides, he was hungry, and the cold severe. However, he went on again till he came to a quaint old house, with small window panes, and queer little gables on the roof, that seemed as dilapidated as he was. Tod crept up to an open window and inspected it. He scrambled to the sill by means of the old ivy vines and looked into the room. Not a soul within! Tod entered. He had never seen anything quite like it in his life. There was one easy

the door opened five minutes later, and a grave, elderly gentleman took his seat at the desk. If Tod had been less hungry he would not have moved at all, but after he had watched the "scratch, scratch" of the pen for a half hour, he ventured a timid "Meow."

The gentleman glanced about the room in amazement. He wasn't a lover of cats, and took umbrage at once.

"Meow—meow," cried Tod, louder than before, but motionless still.

Slowly the straying eyes came back to the desk—to the pigeon hole, and were transfixed. Tod did not move, and didn't know how to explain his presence.

"Well, I declare! Bless my soul!" exclaimed the worthy gentleman, and pushed back his glasses.

"Maria! Maria!" he called, and as the door opened, "How did this happen?" and he pointed out Tod to the astonished Maria.

"Window!" said Maria, shortly.

"Ah! to be sure," replied the gentleman. "Take it, wash it, give it some milk, bring it back."

Maria obeyed, and added a blue ribbon to Tod's neck. Tod gravely crawled into his pigeon-hole once more.

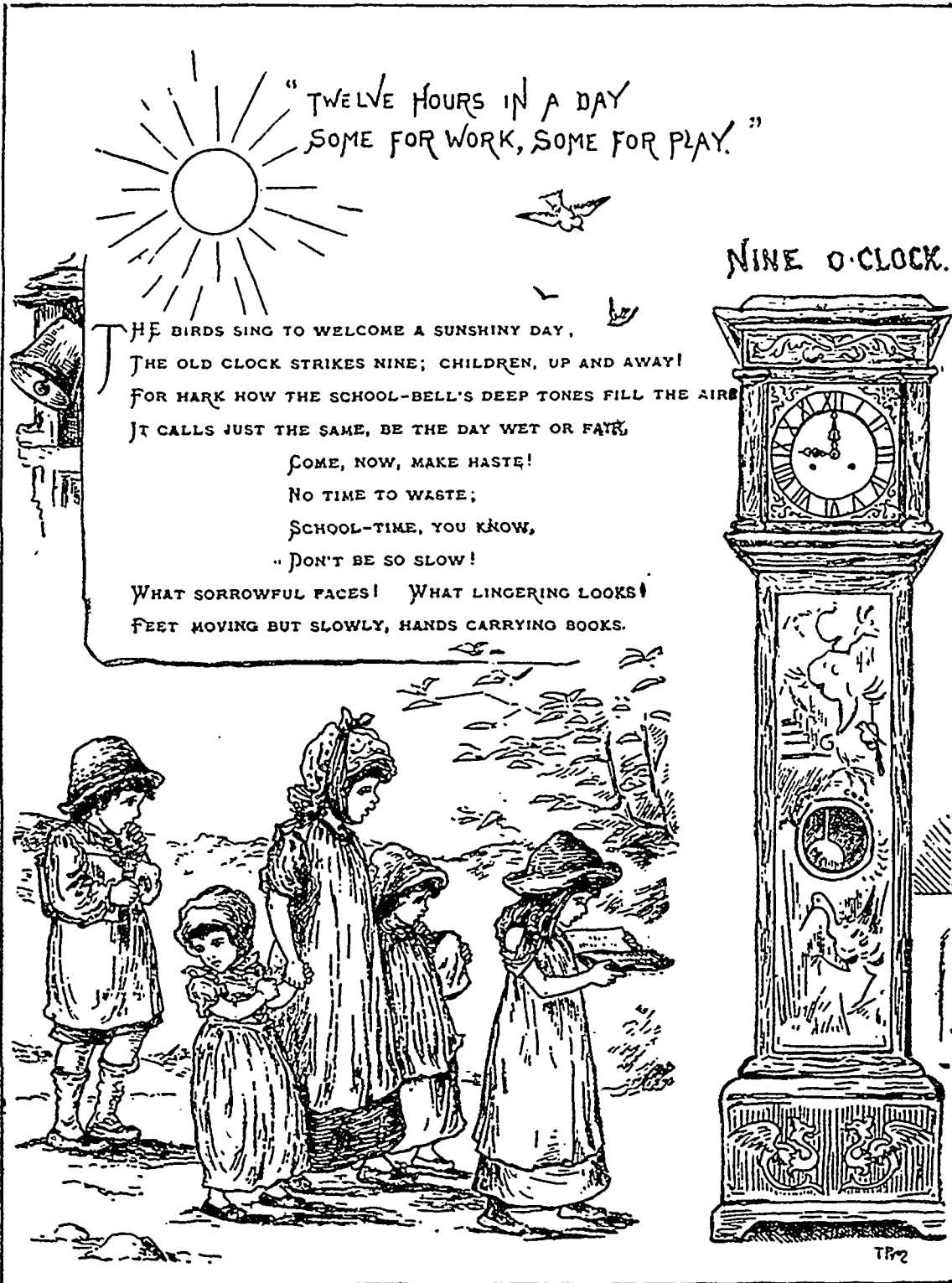
"Why, what shall I do with my papers, you young parasite, if you occupy that?" asked the gentleman. But Tod didn't move.

"Maria, bring me a piece of flannel."

Maria understood, and returned with a square of light blue. She settled it under Tod. Tod purred his satisfaction, and the

gentleman went on with his writing. Tod still occupies the study—an immense fellow he is now, weighing thirteen pounds, and gravely watches the conclusion of a novel, and often decides the fate of a heroine by his humour, so his master says.

He is a prime favourite with the family, while it is privately admitted that the gentleman, a very wise and quiet person usually, talks more nonsense with Tod daily, and takes more satisfaction in jesting with him than he often does in a company of learned doctors, and, most remarkable of all, he owns it. So you see Tod is at last appreciated.



chair, to be sure, and a few cheerful plants in an opposite window, but the walls were lined with straight walnut cases full of books.

"All books!" thought Tod, with some disgust, and looked about in search of a cozy corner for himself. He walked over a table of papers, examined a green iron frog that he couldn't see any use for, and tipped over a waste-paper basket, but no nook to his liking appeared.

Then Tod really showed himself a genius. He climbed again to the table, found an empty pigeon hole, and crawled in. There never was a more demure looking kitten, I am sure, when

HINTS FOR THE HOUSEHOLD.

To remove spots from furniture, take four ounces of vinegar, two ounces of sweet oil, one ounce of turpentine. Mix and apply with a flannel cloth.

MUCH sickness is caused by the odour arising from decaying vegetable matter in collars beneath living-rooms of the house. It should be removed at once, and the windows and cellar door be thrown open daily with the temperature is above the freezing point. It is cheaper to do this than to pay doctors' bills.

To make good sticking plaster, put two spoonfuls of balsam of Peru to six of isinglass, melted with very little water and strained. Mix these well together in a small stone jar over the fire. Pin out some black Persian or sarsenet on a board, and dipping a brush into the mixture, pass it over the silk five or six times, then hold it to the fire, but not very near, and it will soon become black and shining.

BITTER milk is a matter of frequent occurrence every fall and winter, or soon after the cows are off from grazing. It is caused first by bitter herbs in the hay—such as Mayweed, Johnswort, etc., and also by the use of too much over-ripe food, such as straw, corn stover, or late cut hay. It never occurs when cows are fed on good food, and are thriving, or even holding their own, and are kept comfortably warm.

A FAVOURITE dish in some parts of Scotland, as in Athole and other semi-Highland districts of Perthshire, is made by toasting oatmeal—round oatmeal, not fine—on a toaster before a bright fire, occasionally stirring it till it is thoroughly browned, then adding some fat of beef or mutton, with a little salt and pepper, and onions chopped small, after which the whole is further toasted. It is one of the most palatable preparations of oatmeal, and is a very wholesome and nutritious article of food.

The following rules to test good flour are given by an old dealer. First, look at its colour. If it is white, with a slightly yellow or straw-coloured tint, it is a good sign. If it is very white, with bluish cast or with small black specks in it, the flour is not good. Second, examine its adhesiveness. Wet and knead a little of it between the fingers; if it works dry and elastic, it is good; if it works soft and sticky, it is poor. Flour made from spring wheat is often sticky. Third, throw a little lump of dry flour against a dry, smooth, perpendicular surface; if it adheres in a lump, the flour has life in it; if it falls like powder it is bad. Fourth, squeeze some of the flour in your hand, if it retains the shape given by the pressure, that, too, is a good sign. It is safe to buy flour that will stand all these tests, and they are simple.—*Rural World.*

THE shape of the new spring bonnets is medium. No bonnets so tiny as the small capotes which have been popular this winter are shown, and no huge pokes like those of last season are thus far imported. The new bonnets are ornate with flowers and a plentiful mixture of gold tinsel. Coloured straws in every shade and tint are shown in profusion. A season of flowers is predicted and the dandelion is the flower of the season. Little clusters of the blossoms are mounted on the top rim of the bonnet, mixed with pompons and ribbon, or two shades of the flower in ribbon—the pale, lemon-like tint of the edge of the petals and the darker orange shade of the centre of the blossom are used. An exquisite little cottage bonnet of Havana brown straw is trimmed on the brim with a mass of gold-coloured pompons, ostrich tips, dandelions, flowers, buds and leaves, and a rosette-like bow of gold velvet at one side. Strings of gold velvet two inches wide finish the bonnet.

CREAM.

A LADY who owned a retriever
Shot ducks on the lake of Geneva;
She bagged seven hundred,
But blushed so and blundered
In telling it, none would believe her.

AT what time was Adam born? A little before Eve.

LET no one overload you with favours; you will find it an insufferable burden.

PLACE before your children nothing but what is simple, lest you spoil their taste, and nothing that is not innocent, lest you spoil their heart.

Sweeter tis to harken
Than to bear a part;
Better to look on happiness
Than to carry a light heart;
Sweeter to walk on cloudy hills,
With a sunny plain below,
Than to weary of the brightness
Where the floods of sunshine flow.

—Alford.

BJORNSTJERNE BJORNSON, the novelist, narrowly escaped having a middle name. His parents intended calling him Bjornstjerne Bjojosnjnjor-jonjrstjse Bjornson, but the "j" box gave out before the third syllable of the middle name was reached.—*Norriston Herald.*

TAKING the human race as a whole, says an exchange, it is observed that races living almost exclusively on meat have been the most savage ones. Nothing is so apt to transform a human being into a savage as to pay thirty cents a pound for a roast and then find it almost as tough as leather.

NOT myself, but the truth that in life I have spoken,
Not myself, but the seed that in life I have sown,
Shall pass on to ages all about me forgotten,
Save the truth I have spoken, the things I have done.

—Bonar.

"WHEN I married," said Boggs to a party of gentlemen who had been bragging of the successful marriages they had made. "I got a fine house and lot." "And I, gentlemen," exclaimed Mrs. Boggs, entering the room just in time to hear her husband's remark, "I got a flat, the top storey of which has always remained vacant."

"JACK," said the affectionate mother of Stapleton, the other morning, "you really must come home earlier nights. Do you suppose Esmeralda likes to have you stay so late?" "I'll tell you how it was," replied Jack. "You see, she was sitting on my hat, and I felt a little delicate about mentioning the fact." "Very well, I'll give you a bit of advice. The next time, don't hold the hat in your lap."

A MATHEMATICAL professor had been invited by a city friend to visit him at his residence in a certain square and had promised to do so. Meeting him some time afterward, the friend inquired of the professor why he did not come to see him. "I did come," said the mathematician; "but there was some mistake. You told me that you lived in a square, and I found myself in a parallelogram, so I went away again."

A LITTLE girl recently went to visit her grandfather in the country. She is fond of milk, but firmly refused to drink any while there, without giving any reason. When she returned she was asked, "You had nice milk there to drink, didn't you?" "I guess I didn't drink any of that milk," she indignantly replied. "Do you know where grandpa got it? I saw him squeeze it out of an old cow."

WHAT is the difference between a carpenter and a judge? A good deal, you imagine, no doubt, but not so much after all. They both work on the Bench one planes and the other explains; one uses sharp saws—the other wise saws; they both occasionally address themselves to a panel; certainly, one is in the habit of chiselling, while the other punishes anything of the sort; but we should auger—augur, we meant to say, that this is awl the difference between them.

NOTHING is rich but the inexhaustible wealth of nature. She shows us only surfaces, but she is a million fathoms deep.

THE Romans held that seed must be sound, plump, and well formed. It was carefully selected in the field, while yet the crop was standing.

EARLY sowing sometimes deceives the husbandman, late sowing never—for the crop is always bad—is one of the most ancient of farm maxims. Pliny interprets it thus: Early sowing sometimes disappoints the husbandman, late sowing does always.

IT is said to be real economy to use entirely fresh wicks in kerosene and oil lamps very often; for, with the best of care, a wick becomes clogged and a poor conductor after a few usings, and much more of the fluid is exhausted in producing the requisite amount of light than if the conductor had been wholly renewed.

THE farmer who has had luck two or three seasons in succession should look well to see that the cause is not in the weather or season, but in the decreased fertility, lack of good cultivation or lack of drainage. It often happens that heavy soils, while new, are kept light and porous by the vegetable matter they contain. They are also naturally underdrained in wooded countries by the channels made by decaying tree roots. As cultivation exposes the soil to sun and air, the vegetable matter disappears. At the same time the plough breaks up the natural drainage outlets, and the owner must lay tile or go West.

IF you examine a common fly under the microscope as he alights upon a piece of sugar, you will see unfolded from the under surface of the head a long organ which looks quite like another leg. It is really his under lip, and is beautifully adapted for licking up fluids and for scratching solids also, being rough like a file. This organ expands at the end into a fan shape, and is supported on a firm tubular framework acting as a set of springs to open and shut the fan. When a fly alights on the hand or face in the heat of summer, to sip the perspiration which oozes through the pores of the skin, the movement of this little file causes a tickling sensation.

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