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THE CANADA FARMER.

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Agriculture.

Top-Dressing Spring Wheat.

EDITOR CANADA FARMER.—I made an experiment to show what can be done by top-dressing spring wheat. The land was of fair quality but much in want of manure. On May the 17th, sowed 8½ acres with black sea wheat. Weather cold and wet; not well got in, top-dressed May the 24th, per acre, with 100 lbs. salt, 40c., 1 bushel ashes, 20c., 100 lbs. plaster, 60c., 55 lbs. superphosphate ammoniated, $1.10, from Brockville, 18 lbs. sulphate of ammonia, $1.08, carriage and sowing, 32c. per acre, $3.70. It grew strong and evenly, no short or weak stalk, 3 feet 10 inches high. Straw strong; the storms sometimes laid it, but it got up again, I believe owing to the salt. It appeared to give 42 bushels to the acre, but the maggot hurt it very much. On 8½ acres there were 519 stocks of 14 good sheaves each, some of it was threshed and gave 2 lbs. 2 oz. of wheat and 5½ lbs. straw each sheaf, or about 30 bushels of wheat and over 440 lbs. straw per acre. The maggot destroyed not less than 12 bushels per acre.

Bell's Corners, Ont. JOHN ROBERTSON.

The Irish Method of Stooking.

A writer to the *Banffshire Journal* commends strongly to his countrymen and all others interested, the superiority of the Irish method of stooking grain to prevent it sprouting. In contrasting it with the Scotch plan, he says:—"The Scotch stook consisted of 12 large sheaves, with two sheaves drawn slovenly on the top, put up in a slanting position, thereby exposing the corn, scattered with strong gales of wind, completely at the mercy of the elements, as of late seen in this country. The Irish stook is the very reverse; it is built quite straight, compact, and firm, with no corners, and the ties of bands inwards, so as to have the grain quite covered, the cape sheaves being very firmly and ingeniously fixed by drawing and tying a small handful of straw across each sheaf, rendering the whole stook compact and firm, and incapable of being upset by strong gales of wind. So far from the grain and straw being exposed to the injurious influences of the elements, all rain, dew, and sun are excluded, but the wind penetrates it through and through. To fix the cape sheaves carefully two persons are required, one of whom may be a female, but from the stooks being more than double the size, a field is more speedily and cheaply stooked by the Irish than by the Scotch method. The Irish farmer happens to reside in an exceedingly moist and rainy country, and long experience has suggested this most excellent kind of stoop, Pat having a way of his own for solving knotty points. If he gets his crop cut and dry under caped stooks his mind is made easy if it should rain "cats and dogs" for six weeks thereafter, well aware that at the end of that period a cessation of rain for a couple of days will enable him to further secure his crop by carrying it into haggard.

Among the advantages of Irish shooks are, that they save the crops, be the harvest good or bad; that they preserve the weight, colour and feeding properties of wheat, barley and oats. Every person knows that good colour adds to the value of grain, more especially for wheat and barley; but their great advantage to Scotch farmers would be that they would greatly enhance the value of straw, so essential to the feeding of cattle, which is the main stay of the farmer, and the last plank on which they are likely to stand or fall. What is it that constitutes the superiority of English hay, with its sweet smell? Just the mode of its seasoning, and its being kept from the injurious influences of dew, rain and sun. Straw exposed to these influences becomes bleached and shrivelled; whereas straw preserved from the influences of the air and elements, and kept covered with capes, like Irish stooks, keeps its clear, bright colour, retains its weight and sap, as well as its feeding qualities, nearly as when cut, and, I venture to say, would be perhaps enhanced a third in value. If so, ordinary straw at 4d. would make superior straw worth 6d. per stone, or a difference of 30s. per acre yielding 180 stones, which would be more than the rent of ordinary land. But some might say, "wait a little; you may not see such a harvest as the present during the currency of your lease." But what if you did? How many years such "wait a while" could hold their heads above water. There is something inconsistent, if not blameable, in farmers paying very high rents, very high wages for labour, and very high outlays for expensive machinery, &c., for raising and cutting crops, and, after all, allowing them, with folded arms, to get damaged under drenching rains. Must we have recourse to our enterprising cousins for some clever invention for securing our crops, or should we not rather apply some contrivances of our own? If I am not greatly mistaken, times are approaching which will demand exertions and sacrifices both from landlords and farmers, when the former should not be too exacting, and the latter will require his utmost exertions, and even when small affairs (for what is farming but a collection of small affairs, like the Highlander's big cairn, an accumulation of small stones), such as the subject of this letter, will demand the minute consideration of farmers

The Absorptive Power of Soil.

It is an important discovery of recent date, that soils have the power of separating not only ammonia, but other bases also, from their solutions, and of holding them with great tenacity after their absorption. Thus 100 grains of clay soil, taken from the plastic clay formation of England, absorbed 1,050 grains of potash from a solution of caustic potash containing one per cent. of the alkali. It is interesting to observe that the liquid was not, in this case, filtered through the soil, but the cold solution was merely left in contact with it for twelve hours.

It has been further shown that soils have the ability to separate the alkaline bases from the acids with which they are combined. When saline solutions were slowly filtered through soils five or six inches deep, the liquids which passed through were deprived of their alkaline bases, as potash, soda, ammonia, and magnesia, and only the acids were to be found in combination with some other base. Thus, when muriate of ammonia was filtered through the soil the ammonia was removed, and a corresponding quantity of lime, in combination with muriatic acid, was found in the filtered liquid. In the same way sulphate of potash was deprived of its base, and the liquid collected gave sulphate of lime.

Those soils which have the greatest amount of capillary porosity will condense the greatest amount of manurial substances on their internal surfaces, will retain them longest against the adverse solvent action of water, and will give them out most readily to the rootlets of the growing plant

A mass of adhesive clay will absorb but a very slight amount of available manure; but if this same mass is rendered friable, by mechanical processes, its power of absorption is amazingly increased. In view of what has been stated, it is very clear that one way in which plowing increases the fertility of land is by increasing its porosity by pulverization.

Again, many manurial substances exist in the soil, which, being insoluble, exercise no action on the growth of plants; but by the slow, though regular action of the frosts and the rain, the air and the sunshine, insoluble and refractory compounds are reduced to a soluble state, and are appropriated and held on deposit by the soil to the credit of the next cultivated crop. This explains the well known fact that soils, which have been cropped to the very verge of barrenness, will recover their fertility if allowed to remain long enough under the action of climatic influences to saturate the soil with the necessary plant-food, which they have unlocked from their chemical combinations, and given to the soil in a perfect physical condition. These changes are brought about more rapidly when certain mechanical changes of condition are wrought upon the soil.

Carbonic acid is one of the most active of the agents employed in bringing the insoluble organic matter in the soil into that physical condition in which it becomes available as plant-food. In order that this acid may be formed, it is essential that the carbonaceous matter in the soil should be brought into direct contact with the atmosphere, from which they procure the oxygen necessary to convert them into carbonic acid. So long as stagnant water remains in the soil, or so long as the soil is in a dense or very compact condition, it is impossible for the carbon to be converted into acid.—*Journal of Chemistry.*

Poor Hay.

There is a great deal of poor hay in the country which will be fed out between the present time and next spring. And it is a matter of considerable importance to the owners of the cattle which are to eat it, that the best possible time should be chosen and the most economical method of feeding should be pursued. When all possible advantages of the situation are taken, the fact still remains that feeding poor hay is rather a bad job, both for the man who deals it out and the cattle which are obliged to eat the hay. Not that there is any special trouble in making cattle eat it. By keeping them short enough they can be made to eat almost any kind of hay. But the difficulty is to make them thrive upon this kind of keeping. The good farmer not only wants to see his cattle eat their hay, but also wants to have them gain flesh and increase in value. And to make them do this while kept only on poor hay is utterly impossible. They must have something from which nourishment can be obtained or else they will certainly show the effect of poor keeping. The poor hay is lacking in nutritious elements, and in order to make cattle do well while fed upon it something must be added to make up the deficiency. If this is done, pretty poor hay can be fed with good results to the cattle and profit to their owner. My method of disposing of the poor hay which grows upon two or three acres of cold, wet land which I have, is as follows: During the cold days of early winter I feed my stock in the morning with plenty of good hay. About the middle of the forenoon I feed them, either in the stables or barn-yards, with good, bright corn-stalks. After they have had a run in the yard for five or six hours I cut up a lot of hay by running it through a feed cutter, and put two bushels of the cut hay into the manger of each cow. I then throw on water enough to moisten it, sprinkle on from two to four quarts of meal, and mix it up with a pitchfork. When the feed is all mixed I let the cows in. They eat the hay up clean and neither dry up nor grow poor while kept in this way. This is the best plan for disposing of poor hay which I ever tried, and I think it may be safely recommended to the attention of all farmers who have this kind of fodder on their hands.—*Cor. Ohio Farmer.*

Good Ploughing.

Ploughing is an art. A really good ploughman is a rarity as much as a really good landscape painter, and yet ploughing is one of the main items of valuable labor upon a farm. I have seen one man, when ploughing, lean forward with hands upon plough handles, and laboring at one time to keep the plough from going too shallow, and at another to keep it from going too deep; making a furrow of irregular depth and width; here a balk, and there a ridge. I have seen another man take the same team, arrange the gearing, and plough with one hand on plough handles, turning a furrow clean, of even width and depth. Unfortunately too few ploughmen understand the principles of draught, and hence many a good plough is condemned bad. It is this want of knowledge how to use a plough that keeps back progress and reduces the value of crops on many a farm. I speak knowingly, having had practice, more or less, between plough-handles for over fifty years, commencing when eleven years of age. I studied the art of ploughing practically, and being engaged in supplying farmers with ploughs a part of the time mentioned, there was a necessity of knowledge of the form of the plough and the principles of draught In exhibiting and competing at State and country fairs, it became necessary for me to know how to fit my plough for its work, and more necessary to find a ploughman who understood the whole matter. It took weeks to find such a ploughman; but I did find him, and every time he was put in competition he won.

I wish more particularly here to speak of the absolute necessity of thoroughly tilling the soil by ploughing, in order to secure the largest and best grain or grass crops. It is the good seed bed that conduces to the germination of the seed, and it is the free and thorough pulverization of the soil that assists to destroy torpid insect life. Nearly every broken lump disinters the embryo of an insect, and being disturbed in that locality, they seek elsewhere for support, or die in the search Good ploughing is perhaps an indefinite term, because one plough or team cannot perform precisely similar work on varied soils. By good ploughing is meant a perfect turning of the soil; complete pulverization; no ridge left between furrow slices; no hollows to be afterwards filled up by harrowing, and no skips of the plough, going here three inches deep for one to six feet, and then down to seven or eight inches for a rod or more. Soils vary so much that good ploughing cannot be done upon them at all times, yet now as the autumn is with us, with its moisture from rains, all who have soils to plough, should carefully study them, and apply themselves to the work in such manner as is best to be done. Fall ploughing, whether for an immediate sowing or the coming spring's use, is unquestionably advisable, except it be upon light, sandy or gravelly soils, and possibly it may be that light alluvial soils are not benefited by it but as a rule late fall ploughing is of more benefit to the land, when well and thoroughly performed than half a dressing of the best manure.—*Cor. Country Gentleman.*

Winter Manuring.

The question, when should manure be spread upon the soil? is of great importance, not only in regard to the greater or less benefit which may result from the application, but also in regard to the cost of applying it, as the time may be more or less convenient for the work. To spread the manure directly upon the fields as it is made in the stables is a very cheap and convenient method, and if it can be done with good effect would be far the best way of handling it. But the cheapest and most direct way is not always the best by any means. Nor does it follow that what is good in one case or under some peculiar circumstances is good always and for all purposes. Many mistakes occur from jumping to conclusions without thought or experience and too hastily. This is too frequent apparent in listening to or reading the remarks made by farmers at the conventions or club meetings. To a listener or attentive reader it is clearly shown that nearly always the differences in soils, in crops, and in the character and quality of the manure are not taken into account at all, and are either not thought of, or are considered of no importance. It has been sometimes stated that one load of manure spread in the Fall is worth two put on in the Spring; and, again, another has stated with equal positiveness the very reverse. Now, the difference in value between the manure that is generally spread in the Fall and that spread in the Spring is very great. The former is generally old and well rotted, and one load of it, if it has been well taken care of, is worth three loads of more bulky fresh manure, such as is usually on hand in the Spring. This is true if each kind has been made from well-fed animals. But if the former had been exposed to the sun and rain during a Summer, or had been made only from grass-fed animals, that had been simply yarded at night, a load of it would be worth less than a third as much of that which had been made from grain-fed animals, carefully saved, and well handled through the Winter. So that the differences in effect noted by the two persons might easily have been justified by the difference in value of the two manures. One load of well-rotted manure, while it is but one-third of the bulk of fresh manure, has its value as plant food from its condition of decomposition largely increased, so that a greater effect might easily be produced from one load of it than from three of fresh manure. Again, very great differences may arise from the kind of crop to which the manure has been applied. It is manifest that meadows and wheat-fields require different treatment in regard to manuring. No plant is a more exacting feeder in this respect than wheat, which needs thoroughly rotted manure, while grass responds very favorably to that which is coarse, fresh, and drawn directly from the stables as it is gathered. In considering the question, these differences must be taken into account, and the experience of a dairy farmer who draws the manure every day from his stable every day and spreads it every day upon his meadows, will not serve as an example for one who is growing wheat or corn. The saving of labor and expense to the latter may easily be lost many times over by the latter. For a very close attention to what has been said at farmers' discussions, and what we have noted in the management of farmers whom we have been in the habit of visiting and conversing with freely, as well as from our own experience and custom, we are satisfied that the methods of manuring which in the great majority of cases will be most effective and economical are as follows:

For grass lands—either pastures or meadows—the manure may be drawn at any time as it is made, and spread evenly upon the fields. If the ground is covered with snow, and the last spreading is hidden from view, stakes may be placed in the ground as a guide for the next spreading. In these cases it is convenient to keep a line straight across the field, and to spread evenly, breaking the lumps. Hollows which receive the wash from the knolls may be passed over, and an extra portion be spread upon the higher portions. If the manure is very strawy, or there is much litter in it, the field should be raked over with a horse-rake early in Spring, and the raking carried back to the yard. To save this trouble it will be well to use only fine litter, such as cut straw, leaves, hard-wood sawdust, dry swamp muck, or even pond or dry earth. By the use of a sufficient quantity of such absorbents, all the liquids from the stables will be saved.

For wheat fields Winter top-dressing with fresh manure is labor thrown away. A crop so manured will be a failure. If the field has not been manured in the Fall before the seed was sown,, it will be found better to pile the manure in the yard in a compact square heap so that it may ferment, heat, and rot by the time the ground is clear of snow, in the Spring, when the crop may be top-dressed with benefit. But this method is not the best. The best would be to keep the manure well preserved until the Fall, and when it is in fine condition to spread it after plowing, mix it with the soil by harrowing, and drill the seed in where it will be close to the manure. Ten loads of such manure as this will be as effective as thirty loads of fresh, coarse stuff. For corn a similar method of handling the manure is to be preferred. To save labor we have drawn manure so made in sleds just as the snow was about to disappear, or upon a fresh fall of snow in the early Spring, and spread it upon the clover sod or upon the Fall-plowed ground, and have found it most valuable and effective. Some good farmers spread manure in open drills made in Fall-plowed ground, cover it lightly with the plow, and then plant in the drills over the manure; but it is a question if the extra labor is repaid by the increase of crop gained by it. To produce $8 worth of corn at an expenditure of $10 is neither economical nor profitable, but in the preparation and use of manure it is not only the immediately following crop by which the benefit should be measured, but the effect gained during the whole rotation, including the grass with which it ends. In conclusion, we would state as our belief, and a reasonable probability, that by the compositing, piling up and working over, and the careful decomposing of the manure, there need be no loss of ammonia during the whole Winter. We have frequently tested the vapors arising from a well-kept manure heap, with moistened red litmus paper, without once finding the color change, which is a proof that no ammonia was escaping from the heap. Unless the heat is allowed to rise very high and the heap to become dry, there will be water enough in it to absorb all the ammonia that may be evolved in the moderate fermentation.—*N. Y. Times.*

White Willow.

I have seen the time here in the West that nearly every man was favorable to the cultivation of the white willow. Every nurseryman had prepared "cuttings," which he offered and sold largely at $5 per thousand. In a few years they commenced dropping down in price until they, the cuttings, became free to everyone who had a mind to cut and prepare them.

At this time, however, the enthusiasm for the willow has completely abated. While it is no longer a question as to whether it will make a hedge or stockade—for we have miles of it in use—it is a question with most persons now whether it ought to be planted at all. It has come to be regarded by some as a perfect nuisance, while others still incline to the opinion that it has sufficient virtues to commend it.

After an experience with it of some ten years, there are a few things we can affirm of it with certainty. It is the most exhaustive of the soil of any plant which has as yet been introduced into our country. They extend their roots without limitation. Nothing, except probably grass, will do any good nearer to it than from three to four rods While it constitutes a good wind break for an orchard, being of quick and rapid growth, if a man is anyway limited in ground he cannot afford to plant it, as an apple-tree should not stand nearer to the break than from three to five rods. Otherwise it will be sure to become dwarfed and choked down by it. It is not fit to be planted along a roadside. Instead of an ornament, and constituting a refreshing shade in hot weather and protection in winter, we cannot regard it in such places as anything but an intolerable nuisance. Every time for the last two years I have travelled where the wayside has been wedged up by these willows, I have wished there would never be another one planted along any road in the State. The county of Marshall has extended them for miles and miles along the highways. The result is, the farms are almost perfectly hidden from view, and the traveller has to guess at everything belonging to them. There is something refreshing and grand in travelling through a country where farming is carried on in something near perfection, when the traveller can see the growing crops, inspect the buildings and general improvements, with other farm arrangements. But with these willows upon either side, with their tops twenty-five to forty feet high, neither an apple-tree, a barn or anything belong to the farm can be perfectly seen They also injure roads by keeping out sunshine and hindering evaporation, causing continued dampness. Whatever virtues they may have as stockades and wind-breaks around orchards and barnyards, as means of protection, they should by all means be kept from the wayside. The Osage orange is yearly growing into favor. It is becoming hardier than formerly, and is altogether more desirable for a hedge-plant than than the willow.—*Germantown Telegraph.*

The Value of Commercial Fertilizers.

Perhaps tillers of the soil (excepting a few of them) are not aware that commercial fertilizers may be employed to impoverished land, in many instances, without exerting any perceptible effect on the growth and development of crop plants. This fact will be perceived more impressively where the soil consists of a light, sandy loam, than when the land is composed largely of clay and calcareous material, The condition of the soil will often be in such a low state of fertility that a generous dressing with commercial manure will not increase the growth of crops even when the season, rain and sunshine are all as favorable as could be desired. Farmers were once accustomed to suppose that a ton of commercial fertilizers applied to impoverished land would augment the yield of grain just as many bushels per acre as the same quantity would do if applied to a richer soil. But well-conducted experiments have proved that the more a soil has been impoverished the less valuable will be the action of commercial fertilizers by way of developing crop plants. Hence agricultural chemists are beginning to understand that the agricultural value of a fertilizer will depend on the condition of the land under treatment, and that one of its constituents will exert the greatest effect which is most wanting in the soil by the plants under cultivation. The amount and relative proportion of the active plant food in the soil will control the yield of crops, provided that weather and climate are favorable. To secure the highest possible yield will require sufficient manure to enable the plant to find at any period of growth the largest amount of each kind of plant food they are capable of turning to account. When the grain is sold from two-thirds to four-fifths of the phosphoric acid abstracted from the soil is lost for the next crop, and so on year after year. Considering also that this loss is but slowly made good by natural agencies, the final result cannot be doubtful. The general condition of farm lands, regarding their present reduced store of active phosphoric acid, will alone account for the rapid and universal indorsement of phosphoric fertilers, for it is contrary to the teachings of exact experimental inquiry to ascribe to phosphoric acid a particular virtue over any other essential element of plant food. Not only are potash, phosphoric acid, nitrogen, lime, &c., essential, but, according to trustworthy experiments, they are of equal importance; which means, that in case one is wanting, as a general rule, the rest cannot act. The fact that of two crops which require the same plant food one continues to yield satisfactorily after the other has failed, does not contradict these statements. A close examination in such cases will show that these crops either live upon different elements of soil or their roots are more or less capable of abstracting the available plant food. They have more fine rootlets or they spread over a larger area, for the absorption of plant food by roots depends largely on the surface they present to the soil. Hence, the first step by way of renovating an impoverished soil will be to develop a generous supply of humus and humic acid, after which commercial fertilizers may be used with satisfactory profit.

Barnyard manures is quite deservedly the main fertiliser in ordinary farm operations, yet its special value rests more in its beneficial influence upon the physical than upon the chemical condition of the soil. Although we recommend the use of commercial fertilizers, yet it is only to make up for past losses and present wants. Our system of rotation and management in general farming ought to be so arranged as to produce upon the farm the manures required by the crops taken off, for pecuniary reasons. In farming, for special industrial purposes alone will these fertilizers attain more and more prominence on account of their special influence upon the development of those constituents in the plant which give to certain crops a peculiar commercial value, as e. g., liberal supplies of potash increase the amount of starch in the potato, and sugar in the beet, and produce a superior fibre in flax.

A new area may be dated from the time of the introduction of commercial manures. The farmer finds himself less

restricted than formerly: he is more at liberty to choose his crops with reference to his markets, thus tending to make his business more remunerative. Their importance cannot be over-estimated as long as farmers allow so large a proportion of home fertilizers to waste, and as long as the sewage question of the cities remain unsolved. Leaving the improvements of farm implements out of consideration, we can safely assert that the attainment of better results in farm operations is mainly due to a knowledge of the relations of the plants to the soil, air and water, and the various relations of these three agencies to each other, besides a due appreciation of the mutual dependence of plant and animal life. The new agriculture recognizes as its basis the necessity of a strict restitution to the soil of those substances which the crops have abstracted. There is no opposition to any particular system; each farmer is left to choose the kind of farming best adapted to his natural and personal resources, yet all are restricted by one common rule—they have to comp'y with the unalterable relation between demand and supply, for sooner or later every crop, in its own peculiar way, tends to exhaust the soil.—*New York Herald.*

Ploughing Twice for Wheat.

When wheat is to follow where wheat was raised the past season, the question of ploughing twice is scarcely an open one, for if not ploughed soon after the crop was harvested, the ground becomes so hard as to render proper preparation almost impossible, but when wheat is to follow oats the question is an open one, and takes a much wider range. If the ground could be *properly* ploughed but once, and that just in time for seeding, we could produce as good crops as by ploughing twice, but there are two evils, and one or the other (or both combined) will come in the way of this. If the ground becomes hard and dry, as it does in eight seasons out of ten, it cannot be properly ploughed, and the work of after preparation is more than doubled; if, on the other hand, the season has been wet, the growth of weeds is so great by the last of August that they cannot be turned under, and very rough work is the result at best. If ploughed twice in the usual manner, the upturned soil very much increases the labor and expense of carting out the manure, by forcing us to carry much smaller loads. In trying to obviate and steer clear of as many of these evils as possible, I have this season tried a plan which seems to be a kind of combination of the two. As soon as the oats were cut off, a plat of six acres was manured in the usual manner, and at once turned under by a good furrow. After this, the remainder of the field was manured, and its ploughing finished by August 20th. On the first plat the shatterings of the oats were three inches high, and in some places the plat looked quite green. August 22nd, the plough was again started in the first plat, and followed by a heavy roller. As a result, we do not find much more manure on the surface than on the plat ploughed but once, and that the reploughed plat does not require one-fourth as much harrowing as the one ploughed but once. What the future result may be I do not know, but from previous experiments in this line, I expect a favourable one in the grass, without much if any show in the grain, but shall be able to report in due time. Can any of your correspondents give us any light as to the proper depth to drill wheat? I have known good crops to result from the seed ploughed in to a depth of four inches, and equally good from its only being covered by one harrowing. Another question: If no spots are missed by the first harrowing, does a second stroke cover any more seed, or does it uncover as much as it covers?—*Cor. Country Gentlman.*

Plaster and White Clover.

A correspondent writes to the *Country Gentleman* that he has been lately inspecting a farm devoted to the natural grasses and to white clover, as the land is hilly and the soil is a yellow clay loam, a sort of light drift, with a capacity for producing below the average. Though cleared of timber for seven or eight years, it has never been ploughed. He says:

"Two years ago the land changed owners. The present proprietor, Jacob C. Nellis, of Fort Plain, proposing to continue the land in grass, sowed it with plaster. He applied about 150 pounds per acre. There was a decided improvement in the feed, principally white clover. What is interesting is the effect of the plaster on this creeping trefoil. You could not only see distinctly where the plaster had missed, but the difference was all difference. The plaster brought out a thick set of the clover, and the missed places had for the most part no clover at all, and little else. This lot had the cows on it during the time it afforded pasture till three weeks ago, or the latter part of May, when the cows were turned out and plaster was sown. The chief effect was produced the last eight or ten days, when the white clover, as by miracle, seemed to have been drawn out of the ground. This was aided by a couple of rains. But what surprised me most was about an acre of ground which had had potatoes grown on it when it came into Mr. Nellis' possession. Whether the ground had been manured or not Mr. Nellis does not know. But not being able from a crowd of work to plant it, he left it in the condition he found it. It produced some grass and weeds, which were helped by plaster. The plaster was renewed this spring in a good dressing, which started at once into life a crowd of white clover, the equal of which I have never seen. It is but three weeks since the stock was turned out and the sulphate applied, and the growth now is as thick a stand as it is possible to be, and over ankle high, the ground a net work of roots and vines

Winter Oats.

An inquiry having been made about winter oats, I will give my experience, which has been mostly with the variety known here as the "Henderson" winter oats. They grow very slowly in the fall, taking deep root, and never jointing before winter, even when sown in July or August. They do not cover the ground as well as wheat in the fall and winter, but have longer leaves and make more pasture. The leaves and roots stand frost as well or better than wheat. They do not joint as early by two weeks in spring as wheat does, and while wheat is jointing they are stooling out or tillering, until they get as thick as the land will bear, so that at harvest they are all right. We have found them generally improved by cold winters, making heavier grain and longer heads. This year the longest head I saw measured 27 inches in length, and the clean grain weighed 46 pounds to the level bushel

They have only three or four joints to a stalk, and these are near the ground. It is sometimes five feet from the upper joint to the top of the heap. I do not think that 40° below zero will kill them, unless the ground is too wet, or is covered with ice. They have stood well 16° below zero here, and occasionally a few degrees below that, nearly every winter. They have been sent out this fall for nearly all the Northern States for the first time. The Agricultural Department has this fall distributed some mixed winter oats under some name, and as part of the mixture is Henderson winter oats, it may do for a test. If we get reports next summer from all recipients who have tried these and other samples that have been sent out from here this fall, the question will be approximately settled. All true winter oats are rust proof, and remain so until they have been sown too often in spring. The longer they have been sown in fall the better, even for spring sowing. They take deeper root than spring oats, and do not suffer at all from dry weather before harvest. The later the winter oats are in maturing the better they stand the winter, and the same is true with wheat.—*Cor. Country Gentleman.*

The Drill and its Economy

A correspondent of the Ohio *Farmer* has been examining the question of whether a wheat drill pays or not, and he says:

"Nearly every man acknowledges the advantages claimed for drilling, but they do not generally exercise a 'living faith' in it—a faith that will compel them to buy the first good drill they come across. In my section as far as I have been able to ascertain, only one farmer in five owns a drill. The other four sow broadcast or borrow of their neighbors. One is about as reprehensible as the other, and either indicates bad management, ignorance, or stinginess. I class them under these three heads, for the objections I meet are 'not able to buy,' 'don't believe they pay,' and 'too high-priced.'

"When a man tells me he is not able to buy a drill, I give him this illustration:—Mr. A. puts in ten acres of wheat every year. Three years ago he bought a drill of me. Before that he sowed two and a half bushels to the acre; since, he has used but one bushel and a half per acre. Thus, in three years he has savedon seed alone, thirty bushels; calling it $1 per bushel, a very moderate estimate, he has saved $30. He has secured a much better yield by drilling. The first year he drilled wheat, he puts his gain over broadcasts owing at 25 bushels; the second year, 30 bushels, and this year, 10 bushels. He gets these figures by comparing his present crops with past ones, and with his neighbor's crops that were sown broadcast. Here is a gain in three years of $65. Adding this to the $30 saved in seed, and we have $95 gain in three years—$15 more than the drill cost him, and it is good for twenty years' work. Don't that pay?

"'O yes,' says one, 'to hear you tell it; but the drill don't save that much seed, and don't increase the crop very much.' Very well, but I say it does. It will save one-third of the seed every time, and produce ten to twenty per cent. three seasons out of four. In a very favourable season, especially with a very favourable winter, the difference in yield is not so great, though it is large enough most any year to pay a good interest on the money invested in a drill. In the case I have cited, the average yield for five years by broadcast sowing was fifteen bushels. For the three years of drilling the average yield was nearly eighteen and a half bushels. But the crop of '74 was an exceptional one, and the average yield of fields in this section was greatly increased over previous years, or the two years since.

"There are several good reasons why drilling produces better crops than sowing broadcast. The seeds are deposited at the same depth, and at the right depth, are covered uniformly, and with fresh, moist earth, thus securing early germination and uniform development. Very much is lost by the unequal ripening of wheat in broadcast sowing. This unequal development, I have no doubt, is the cause of many of the diseases of wheat, as the plants retarded by deep sowing are weak and feeble, unable to resist the bad influences of weather, etc., and are the very ones to invite the attacks of insects. In drilling the seeds are placed at uniform distances apart in the rows. In broadcast sowing, two, three, four and more grains will frequently fall together. These crowd each other, and part must perish, or else all are only partly developed. In compact soils wheat should not be covered more than two inches, nor less than that; in light or loose soil, three inches is about the right depth. Two shallow is worse, if possible, than too deep, as there is not as regular a supply of moisture to the shallow covered grains."

Salt as a Fertilizer.

I beg leave to say a few words in regard to the use of salt. I fully endorse the statement made by your learned correspondent, S. Rufus Mason, in the use of salt to kill worms and insects. Lime also has considerable effect in destroying insects, thus at once preventing their depredations and fertilizing the soil by their remains. Lime is used to a great extent in many parts of England, especially upon strong land; and where it is used liberally the land is not infested with grubs, worms, etc. It is true that a great many farmers are afraid that salt will kill vegetation; but this is an absurd idea if used in proper quantity. Salt as a manure is singularly beneficial, if used in small quantity. The fattening of cattle upon salt marshes has been practiced time out of mind, and it is to the salt contained in those lands that a very considerable part of the effect must be attributed. Salt is of great use for raising turnips and other roots, and also for all sorts of grain, causing the straw to be strong and the grain thin-hulled and heavy; at the same time it destroys noxious insects.

There was a time when the quantity of salt recommended was from twelve to sixteen bushels to the acre; but on the authority of a gentleman who had made, through a course of years, a great number of experiments in the use of salt as a manure, and who communicated the result of them to Parkes, the ingenious author of the "Chemical Catechism—one bushel per acre is all that can be used with safety, a greater quantity would render the land sterile for two or three years afterwards. This is consonant with the fact that a small quantity of salt hastens putrefaction, while a large quantity effectually prevents it; for the salt does not act so much by its being absorbed by the plant, as by its property of attracting moisture from the atmosphere, thus promoting the decomposition of other substances and causing them to afford the nutriment required.

A Mr. Cartwright received from the Board of Agriculture the honorary reward of a gold medal for a valuable set of experiments made by him, to ascertain the value of salt in agriculture. Of the soil he used nearly three-fourths was sand, the remainder consisted of calcareous and vegetable matter, with alumina and a small quantity of oxide of iron: Having tried all the usual manures alone and differently combined, he found salt to be superior to any of them when used singly, excepting chandler's groves; but of mixed manures salt and soot were superior to all others. The produce upon which these experiments were made was potatoes, and it was observed that wherever salt was used this root was free from scabbiness, with which it is commonly infected. One peck of soot and a quarter of a peck of salt were used to a bed one yard wide and forty yards long. When the salt was used alone the quantity was the same to a bed of the same extent. Chandler's groves, it has been noted above, is an excellent manure, proving superior to salt when used alone. The refuse of salt-works, soap-boilers' and bleachers' wastes may also afford the farmer an equally valuable resource.—*Cor. Germantown Telegraph.*

A Farmyard Manure Spreader.

On the invitation of Captain Delf, I went, on Tuesday last, to see a new Manure Spreader, of which he is a joint inventor, at work on his farm at Great Bentley, Essex. On that occasion it was distributing a fair coat of well rotted London manure, but at other times it has spread long manure direct from the farm-yard. The work was well done, and without any stoppage, except when an old tin saucepan blocked the machine for a minute. The manure could not have been spread more regularly if done by hand, and the work was got over at least as quickly as if the man who unloads had been simply pulling the stuff out of the cart into heaps, as in the ordinary fashion. The machine runs on iron wheels behind the cart, to which it is hooked on by a simple arrangement. Indeed, the whole apparatus is very simple, the only working parts consisting of a revolving lath platform, bolted on to two endless chains, and an agitator (or separator, as I should prefer to term it), which also revolves. The motion is communicated by the driving wheels by means of two cog-wheels, and the draught is so light that no extra horse is required beyond the one or two usually employed in laying down farm-yard manure. A man stand on the manure in the cart, and feeds the machine with a fork, a boy leading the horses up and down the field. The spreader is much lower than the cart, so that the feeder has only to throw the manure down, and never to raise it. The agitator consists of a series of prongs fixed into a spindle, and arranged in an irregular spiral (helical) form, so as to distribute the manure evenly over the platform, which revolves in the reverse direction. As the platform revolves it carries the manure, finely divided by the agitator, over to the back of the machine, throwing it on to the ground in a regular and continuous stream of small pieces. The quantity of manure distributed is regulated by altering the width of feed, or by the speed at which the cart and machine travel. A width of 6½ ft. is spread each time the machine travels up or down the field, but the inventors think that for land on the flat 1½ feet may with advantage be added to the width of the spreader. They have only just perfected their machine, and consequently have not yet brought it before the public; but those who have been invited to a private inspection have without exception, I believe, expressed themselves as highly pleased with its working. The advantages of a manure spreading machine are many and obvious. Among these may be mentioned the great saving of labour; the advantage of being able to let the ploughs follow closely after the manure carts, thus avoiding waste from evaporation or washing, the avoidance of the small heap bottoms, which are rarely shovelled up closely enough, and which absorb a large portion of the juices of the manure; and the avoidance of the damage done to young clover by the dragging of the carts after they are tipped, and by the shovelling up of the heap bottoms. It would be an additional advantage if the machine could be made to feed itself, but this captain Delf cannot yet see his way to attain without sacrificing some of the existing advantages of his spreader. There seems to be no reason why chalk and lime, as well as manure, should not be spread by the machine, for which purpose it would probably be advisable to take out the agitator. Any one desirous of seeing the spreader at work should make an appointment immediately by writing to Captain Delf, Great Bentley, near Colchester.—*Bell's Messenger*

A New Turnip Raiser.

Editor Canada Farmer: Sir—Enclosed is an account of a new *Turnip Raiser* now coming into use in Scotland; from the account given it would seem to be a very useful implement, and one that it is desirable to introduce into Canada, as topping and tailing turnips by hand is a laborious, back aching work at best. As our reaping, mowing, threshing and other machines are now brought to a good degree of perfection, some of our enterprising implement and machine makers might turn their attention to introducing or inventing a machine for the purpose of enabling the farmers to harvest their turnips quicker, easier, and cheaper, than they can be done by hand. The following is the description:

"In the application of machinery to agricultural labor, there are still a number of wants which engineers and implement makers will doubtless supply in coming years. A machine attached to the reaper to bind the sheaves seems in a fair way of being accomplished, and it is certain that no pains will be spared to produce one equal to the work. Among the latest inventions may be named a machine for topping, tailing and raising turnips, an operation that on many a farm will very soon involve considerable weekly expenditure. The first tool of the kind worthy of notice was exhibited at the Highland Agricultural Society's show at Stirling in 1873. Mr Hunter, of Maybale, improved upon that implement, and exhibited at the Royal Agricultural Show at Bedford in 1874, when it attracted considerable attention. Since then its construction has been improved, in fact almost remodled, the amendment being the placing of the wheel that runs between the rows of the turnips nearer the centre of the body of the machine wherein its adaption to the inequalities of the ground crop has been perfectly secured. Many of our readers must have seen the implement at the Agricultural Show at Birmingham last July, as it was the only machine of the kind that was exhibited. The implement is light, but sufficiently strong for the purpose required, and its simplicity is its good recommendation—both in relation to its work in the field and removal by road. It is easily worked by one horse and one man. A large number of them were in use last winter in Scotland, and they state that they raise six to eight acres a day, and where there is an ordinary breadth of turnips to lift, it will recoup itself in one season.

The storing of the turnips comes at a time of the year when the weather is uncertain, and the days are rapidly shortening, and thus dispatch is of prime importance then, as economy is at all times. On both grounds Mr. Hunter's turnip lifter seems to us worthy of the trials which many of the leading farmers in Scotland are giving it.

Coburg. W. R.

Culture of Broom Corn.

The *Journal of Agriculture* describes the culture of broom-corn on this wise: "Broom-corn requires rich soil; bottom land is the best, and it should be as free from grass as possible. The reason for choosing clean land will appear plain to a man who has raised a crop. The ground should be well ploughed and made perfectly fine with the harrow, then marked out with shallow marks if to be planted by hand, so as not to get the seed too deep in the ground; but the best plan is to plant with a drill. The stalks must be as close as five or six inches, to prevent the straw from becoming too heavy. Of course it cannot be drilled with much regularity, but must be cut out with the hoe to the right distance when small. It is like sorghum, grows slow while small, and on most land it is positively necessary to hoe the grass out, which gives a good opportunity for cutting out to the right distance. After this is done the cultivation is similar to that of corn. When the seed begins to fill the straw will bend over from the weight, and to prevent this the full force of the hands must be put to break the stalks over, say ten or twelve inches from where the straw grows out, or more properly the head. The weight of the seed will then, by hanging down, keep the straw straight. Now comes the busy season and the time when labor and care will add much to the value of the crop. The green straw being altogether the most valuable, it is important that it be cut before it turn red, and dried in the shade. To do this a shed is necessary, with shelves on which to lay it, say six inches deep, and enough hands be employed to cut the crop before any or much of it turns red. The seed is stripped by means of a machine made for the purpose, with two cylinders between which the corn is held in handfuls. The process is very rapid, only an instant being necessary to knock the seed all off. The corn is baled before being sent to market. The price is very fluctuating, running from $60 to $250 per ton."

Suggestions About Wheat and Seed.

One of our English journals suggests: "It is sound advice in buying young stock, to select them from a poorer district than that for which they are destined; and it is equally reasonable to purchase seed wheat that has experienced something of the struggle for life—and will therefore the better appreciate your sheltered warm soils and milder air.

"The varieties of wheat are simply endless. They differ from each other in the shape of the head or ear; the degree of beard or awn; the color and texture of the chaff scale; the set of the florets; color, quality and shape of the grain; length, strength and color of the straw; hardihood, and adaptation to particular sorts of soil. With so many directions in which characteristic properties may be developed, it is no wonder that we have great variety. Dalbret cultivated 150 to 160 kinds, which we are told all kept true; Colonel Le Couteur possessed upwards of 150, and Phillippar 322 varieties. We are informed by Colonel Le Couteur that in a field of his own wheat, which he considered at least as pure as any of his neighbors, Prof La Gasca found 23 sorts; and Mr. Patrick Sheriff, the well known Scotch wheat experimenter, had observed similar facts. It is said by those who have paid attention to the subject, that the wheat at the base of the ear is always different in appearance to that at the top, and not only so, but they will each retain their peculiarities when propagated. Such facts point to an endless variety of sorts of wheat."

"Practical men may smile at the idea of the learned Professor emerging from the Colonel's wheat field with his 24 distinct sorts, but it must be remembered that a trained eye is a wonderful thing. The man who can tell Booth from Bates in the dark, simply by touch, may be supposed capable of sympathy with such wheat experts as Professor La Gasca. So far back as 1850, Colonel Le Couteur drew attention to the practical importance of attention to the varieties of wheat in the following pithy words: "It is the suitableness of each sort to each soil that will enable the farmer to pay his rent by growing one variety, where he would be unable to do so by attempting to grow another of a seemingly better sort.'

"We may ask, who is sufficient for these things? Has the farmer not only to understand the routine of his business, but to weigh with refined and scrupulous care the merits of the many varieties of wheat, barley, roots, oats &c., which are offered by seedmen? It has long been acknowledged that this kind of mental penetration is required on the part of graziers. They must be alive to the aptitudes of different races, and the minute differences of quality in individuals. Why, then, may not the arable farmer be required to weigh with greater care than heretofore the special adaptabilities of certain sorts of wheat? Depend upon it, it is not sufficiently considered, and in consequence, anything is thought good enough for seed. The sort which ought to be sown will of course vary in every situation, but it behoves every agriculturist to take serious pains to select a kind suitable to the quality, condition and climate of his farm.

Seed wheat may not be in what millers call "condition," but it may be new, clean and perfect. It should not have suffered from heating either in the stack or sack, it should neither have been injured in passing through the machine or by the attacks of insects, neither should sprouted grains occur, indicating that it has been exposed to bad weather.

If we are right in thinking that the altitude of our chalk hills, and the exposed and cold character of their soils is the reason why they are looked to for a supply of wheat—may we not go a step further. Mr. Darwin tells us that wheat is easily acclimated. "Nearly all the plants raised from summer (spring) wheat, which was sown in autumn perished from frost; but a few were saved and produced seed, and in three years this summer was converted into a winter one." In Canada the first settlers, according to Kalm (Travels in North America) found their winters too severe for winter wheat brought from France, and their summers often too short for summer wheat, and until they procured summer wheat from the Northern parts of Europe, which succeeds well, they thought that their country was useless for corn growing. No doubt wheat, wherever cultivated, requires heat in summer, and is well known that the hotter the summer the quicker and better will it ripen. Still the above fact cited by Darwin is interesting, especially if taken in connection with our own partiality for wheat grown on the high situations of the chalk. On the other hand, we know that the Australian wheat grown in 1875 in this country was much blighted, as see Mr. Mechi's report which our own experience endorsed. Might it not then be worth while to try some creeping red from Northumberland? Or from Fife or Inverness?

What Crops to Leave in the Soil.—Many farmers are rather slow to learn that what they take out of and off the soil in the form of a crop must be paid back to the soil or it becomes greatly impoverished. Ignorance of or indifference to this great law of nature has caused many worn out, worthless farms throughout the country, and it is high time farmers should begin to realize that they must pay back what they get from their soil, or else stand condemned as murderers of the life-giving soil bequeathed or falling into their hands in the order of Providence, and transmitting to their children a ruined, worthless inheritance of land. On this point it may not be amiss to publish the experiments made in Germany by Dr. Weiske and several other savans, showing that the stubble and roots left in the earth by crops that have been harvested, add to the soil much more nutritive value than is commonly supposed. These experiments fully explain the great value of clover as a preparatory crop for wheat, and for all other crops that are not manured with nitrogen potash and phosphates. The clover of a single acre has been found to leave nitrogen for 110 bushels of wheat, phosphoric acid enough for 114 bushels, and potash enough for 78 bushels. Moreover, it is found that most of this valuable material is left in the best possible condition for use. Whether the nitrogen of the clover comes wholly or partly from the soil, or from the air, it is certainly taken from a condition in which it is of little use to most crops, and it is converted into an available one, so that practically, the clover is a creator of nitrogen in the soil, as it is also an efficient purveyor of potash and phosporic acid.—*Rural Sun.*

Horticulture.

The Raspberry, its Culture and Varieties.

The cultivated rasp is in its several varieties an improved form of the common wild rasp of our woods, the botanical name of which is *Rubus idæus*. The varieties are not numerous, and those generally cultivated are the Red Antwerp, the Yellow Antwerp, Fastolf, October Red, and the October Yellow. Of these Fastolf is the best for a general crop. It is a vigorous grower and abundant cropper, and the fruit is very large and luscious. It has the merit also of being rather later than the Red Antwerp, lasting in the same circumstances fully a fortnight later than the latter, so that by growing both an advantageous succession of fruit may be obtained. The Yellow Antwerp is most prized for dessert, being less acid than the red varieties, and, consequently, more agreeable to most palates. The difference in color also supplies a pleasing variety ta the dessert, but it is not so valuable for preserving. The October Red and October Yellow are chiefly valuable on account of their late cropping qualities, but as either of the previously named sorts may under the treatment required by the latter be induced to fruit in the autumn, there is no necessity for growiug these specially should fruit be wanted at that late period. A new red sort, named the round Antwerp, sent out by Rivers of Sawbridgeworth, is likely to prove a favorite with those who require raspberries for dessert. It is large and showy, and mildly acid, with a very fine aroma. Where only fruit for preserving is wanted, the dependence for supply had better be placed on the red Antwerp and Fastolf.

The raspberry succeeds in any ordinary loam of good depth, but best in deep, dark, unctuous loam on a cool moist bottom. It is not naturally a deep-rooting plant, but if the soil is very dry, it is well to trench deeply in order to admit of a portion of the roots finding an easy way to some depth beyond the reach of extreme drought in summer when the fruit is in process of swelling. In hot, thin soils, a spot somewhat shaded from the midday sun should be chosen for them; indeed, in any soil the benefit of a little shade will show itself in the superior size and lusciousness of the fruit, so that, if possible, a somewhat shaded place should be selected. October is the best month in the year in which to plant the rasp, but it may be planted successfully any time during the winter months up till March. Planted later than the latter month, they do little good the first season without much care and attention, especially if the weather proves dry throughout the remainder of spring. When planted so late, the plants should be cut over close to the ground; they will not bear any fruit fit for use even if the canes are left the usual length, and as the leaving of the canes would only for a time be a source of weakness to the roots, it is better to remove them as soon as they are planted. Let the ground be well matured both in the upper and lower spits with good sound stable or cow manure, not very much decomposed in the bottom, but better rotted in the upper spit. When the ground is well trenched and prepared—and this should be done of possible a month beforehand—mark it off into squares four feet apart each way, and fix a stout stake in the corners of each square. The stakes should be about four and a-half feet above ground after being fixed sufficiently deep to make this a firm support to the canes. On one side of each stake a hole should be dug about a foot wide, and nine inches deep, scattering the earth removed over the surface equally. A quantity of compost of fresh loam, leaf-mould, and old frame dung, well rotted and equal in bulk to the size of each hole, should be prepared in equal proportions well mixed together. This should be laid down beside each hole before selecting the canes and planting them are commenced. The best canes to select are the strongest. If only weak ones can be obtained, cut them over as soon as they are planted. Three canes should be planted together in each hole, filling in the compost to within three inches of the surface only at present, and making all firm with the foot. When all are planted lay a mulching of good fresh manure in the hole, in the space left unfilled, and water over that, after which fill in the rest of the compost and dress the surface, and make it level with the spade. It is not advisable to tie the canes to the stakes just at once. There will necessarily some sinking of the ground take place for a little time after the planting is done, and if the canes are tied up at once they are apt to become suspended by the stakes instead of resting on the ground. Should ground be scarce, a crop of cabbage may be taken off the space between the rows immediately. A row or a couple of rows between each line, if cut in spring, and cleared away before the young plantation makes much way in growth, will be found advantageous no doubt; but if there is plenty of land in hand it is not advisable to impoverish the spaces between the newly planted roots, nor to consolidate the ground so much as it would necessarily do to crop between the rows. In order to have what is called an autumn crop of rasps, variety may be selected for the purpose. In spring, the canes of last year's growth must be cut over. The growth of new canes will, in consequence, be very rapid, but in plants that are treated in this way there will also be many weak canes. These must be carefully thinned out, leaving only the matter of three or four of the very strongest to grow and bear fruit. Those may be allowed to grow till they attain the height of four or five feet, when they must be cut back to about three feet from the ground. This will induce them to start the lateral buds, which would, in ordinary treatment remain dormant till next year. But though thus started prematurely, they are none the less fruit bearers, and will bloom and carry fruit which may be in use in October and November, or in exceptionally dry seasons they may be in use even later than that, though what with diminished heat and light they are, it must be admitted, a rarity in the way of fruit of rather doubtful quality, very pretty to look at, but not quite so pleasing to the palate as to the eye. In the general routine management of the rasp, the principal points are pruning and thinning out the canes; the latter process is too often delayed till too late in the season. It should be done in summer when the growth is fresh, and as soon as the leading canes show themselves by their extra strength. Four, or at the most five, of the strongest should be selected and tied up carefully; the rest should be cut away entirely. The pruning or cutting away of the worn-out shoots that have borne fruit the current season should be done early in the autumn, and the shoots that are to bear fruit next year should then be shortened and tied to the stakes.

Culture of Cabbage.

Many persons complain that they cannot have any luck with cabbage; it will not head for them. The cabbage is just as easily grown as any other plant if its natural wants are met in the surrounding conditions. These wants, although not many, nor difficult to meet, are imperative and must be met if success is to be secured. A little study of its nature will give some insight into the character of these wants.

The cabbage is a biennial plant, and all its efforts during its first year's growth are directed toward laying up in its stalk and thick stems and leaves as large an amount of plant food as possible, to be drawn upon for the production of seed during the second year. As the formation of good heads requires a rapid growth, the first necessary condition is a very rich soil. It is very difficult, if not impossible, to have soil too rich for cabbage, provided it is thoroughly rotted. And it is next to impossible to secure satisfactory results without a rich soil.

This plant is a native of the seacoast of Europe, and grows in a moist soil and atmosphere. From this it would seem that the nearer these conditions can be met the better. Where it can be secured, a moist but not wet soil should be selected. But one of the most essential conditions of success in cabbage raising is, frequent and thorough cultivation. Without this success can seldom be achieved; with it, fair success may be had even when other things are not very propitious. It is hard to overdo in this matter. Cabbage should be thoroughly cultivated with plough or hoe at least twice each week. This frequent stirring of the soil keeps it constantly in a porous and moist condition, so that the demands of this succulent growing plant are fully met. No one should attempt to raise this plant for profit who is not willing to give this thorough culture.—*Cor. Ohio Farmer.*

Storing and Keeping Apples.

The size of my fruit house is 24 by 33 feet, two stories eight feet each, set over a cellar with a seven foot wall. Common fence boards are used for studding and sheeted on the outside with good matched stuff, and on the inside a lining of cheap, common boards. Between the studding and these sheetings it is filled with tan bark excepting one space near each corner, which are left open to act as ventilators or chimneys, having a connection with air tubes running through the building under the joists, fixed with valves on the outside to open or close at will. Under the joists of each story it is ceiled, and a coating of two or three inches of tan bark spread over it. The floors are of common fencing laid open about one-fourth of an inch so as to admit a free circulation of air from below, passing into the ventilating chimneys through holes cut through the inside sheeting, and passing into the open loft and escaping through the ventilators on the centre of the roof, regulated by movable slides and cut-offs. Inside of the lining is another course of matched stuff nailed on the furring an inch thick, thus making a dead air space.

The doors and windows are all made double with blinds for the latter. Near the centre of the building are trap doors through all the floors with hoisting apparatus. The advantages expected to be gained by this mode of building is to be able to control the temperature evenly; both against the warm days of this season of the year, which is so great an obstacle to keeping fruit in the North-west, and the severe frosts of winter, without an artificial heat or cellar. The cost all completed, and painted, is about $700.

The description is given thus particular, as I feel that there is a necessity for something of the kind more than ordinary buildings, so that fruit growing may be made a success in the West by obviating the premature decay of our best fall and winter apples. If any of my brother fruit growers have any better plan for the handling of apples from the picking to marketing, I hope it may be made known through your columns, that new encouragement and a new impetus be given to apple-raising. B. B. Olds.

P.S.—The packages I use I find very convenient in picking and transferring from the orchard to the fruit-house, as well as for storing; which are crate boxes, made of common lumber for the ends, ten by eleven inches, and lath cut in the middle and nailed on to three sides, with one piece on each edge of the top, so they can be set upon each other, either in the wagon or fruit-house. The apples may be marketed in these boxes or easily transferred to barrels.—*Cor. Michigan Farmer.*

Grafting from Nursery Trees.

In answer to the question: "Will apple trees grafted with scions cut from nursery rows, as is commonly done by nurserymen, be likely to come into bearing as soon as trees grafted with scions taken from bearing orchards?" Mr. M. B. Bateham writes to the *Country Gentleman*:—The propounder of this inquiry deprecates the practice of nurserymen referred to; as he has adopted the common belief that the habits of the parent tree, as well as the variety of fruit, are continued or reproduced by the scion. This, however, is not the opinion of the majority of those who have given much attention to such matters. In my own experience as a nurseryman, years ago, I used annually many thousands of scions of both the classes mentioned, and on noticing the result the only difference perceived was that, as a rule, the scions from bearing trees did not make as good a growth the first season, owing to the shoots on bearing trees being generally less thrifty than those on the nursery trees; and hence the latter were preferred when they could as well be had of the desired kinds, and the wood well ripened.

I saw afterwards thousands of these trees set in orchards and come to bearing age, but could discover no difference or fault in regard to fruiting. Indeed some of the kinds were disposed to begin to bear quite too early—even while standing in the nursery; while others, like the Northern Spy, require ten years or more to arrive at bearing age. This habit, like that of the usual form of the tree, is of course a peculiarity of the variety, and is continued through successive generations by grafting; but not so the condition of an individual tree as to thrift or fruit-bearing, which is consequent upon age or accidental circumstances. If this were so, the using of scions from old trees, as is sometimes done, would tend to produce premature age and decay in the young trees on which the scions were grafted. But no such result is seen. Again, we may reverse the case, as is done in taking scions from seedling pears, only one or two years old, and grafting these upon bearing trees, for the sake of speedily testing the variety. Here we see that the stock, and not the scion, has the most to do in the matter of inducing fruit-bearing. The same is true where a scion from an old tree is grafted on a young stock. It seems at once to assimilate with the stock in its youthfulness, and disposition to grow instead of to bear fruit. Why this is so, is like the why and wherefore of a good many other things pertaining to the influence of stocks and grafts upon each other; we can only say that as yet we do not know. It is right for us to leave many of these problems for posterity to solve. They will have better advantages at the start than we had, and ought to make greater progress in discoveries.

Grapes as Food.

We have on former occasions referred to the value of fruits as articles of diet, both in health and in sickness. Grapes may deservedly claim a high rank among the fruits in this respect. They contain a considerable amount of hydrocarbonaceous matter, together with potassium salts, a combination which does not tend to irritate, but, on the contrary, to soothe the stomach, and which is consequently used with advantage even in dyspepsia. According to Dr. Hartsen, of Cannes, in France, who has recently contributed an article on the subject to a foreign medical journal, the organic acids in the grape, especially tartaric acid, deserve more consideration than they have generally received. Their nutritive value has, he thinks, been much underrated.

Grafting Pear Trees.

A correspondent of the *Country Gentleman* thus describes his process for grafting the pear-tree: "In the spring I cut the scions from the trees I desire to propagate, and bury them half their length in the earth at the foot of the tree These will do to graft from for two or three months. When the bark will separate easily from the wood I saw off the limbs square upon my stocks, at any length from the ground, make slit a downward on the side, and insert the scion, properly shaved off one-half and fitted with a shoulder into its place. One stock will serve for several scions, according to its size. Stocks three inches in diameter will serve for four scions. The grafts must be bound on and waxed in the usual way, and when the work is carefully performed not one in a hundred will fail. It is not necessary, however, to make the provision for scions which I have described except for early operations. Grafting by this style may be done nearly all summer, resort being had to the standing trees for the scions Early in the season the old wood or twigs of last year's growth may be used. If any growth has been made cut back the immature part of the buds more fully matured, or to those who have not started Later, the new growth is admirably adapted to this purpose. The scions will immediately put out and make a fine growth the same season This method saves the trouble of splitting the stock, and fitting the scion exactly is more readily performed, and may be practised at any time from the latter part of May till August with the most perfect success. I sometimes use a scion with three or four twigs or with half a dozen buds, and insert two or more in the same stock, according to its size."

The Apple Bark Louse.

Professor C V Riley, the State Entomologist of Missouri, publishes the following on the subject of the apple bark louse. "On the 8th of June most of the eggs laid by the female under her shell or scale were hatched, but they did not leave their protection. On the 9th, however, when the weather was exceedingly warm, they were found running all over the twigs At this time they are long, oval in shape, with short antennæ and six short legs projecting beyond the edge of the body. Two days after, on the 11th, they became fixed, and the day after a white waxy secretion began to issue from their body in the form of very fine delicate threads On the 22nd they had grown larger, and soon the body was covered with a scale, the hairs had disappeared, while the body had lost all trace of limbs. After this the scale grows larger and larger, until by the 1st of August it becomes of the full size At this time the scale is of the shape of an oyster shell, being long and narrow, and somewhat conical in outline. If the scale is removed and closely examined, the wingless, grub-like female is seen It has no legs, but the sac-like body is marked with wings. It has undergone a retrograde development, and lost its limbs and feelers. On the other hand, the larvæ, destined to become males, when about to change to the pupa state, spin a cocoon, within which they remain probably until late in August, when the females lay their eggs. The males have two wings and long bodies and are very active in their habits. No one suspects them to be in any way related to the sac-like female bark-lice On the 12th of August, it was observed that the females began to lay their eggs, and by the 28th, all had ceased depositing their eggs, and soon their bodies shrivelled up, but the scales, however, remained attached to the bark of the tree. From the middle of June to the last of August they are anchored to the bark and suck the sap, the life-blood of the tree. There is but a single brood of the bark-lice, the eggs laid late in the summer, hatching in the early part of the succeeding June The scientific name of the bark-louse is *Aspidiotus conchiformis*."

Cost of Harvesting Apples.

We meet many farmers who, commenting on the low price of apples, declare that it will hardly pay for handling them It is pretty hard to determine just what it costs to pick, assort, pack and market apples, for the cost is affected by so many conditions.

1. It costs a great deal more to pick apples on high-top than on low-top trees, and on partly filled than on loaded trees Take a young orchard of Baldwins and Greenings, from fifteen to twenty five years old, with low heads, every branch thickly filled with fruit (as many we have seen this year were,) the fruit mostly large and fair, and pickers would make money at picking and packing them for fifteen cents a barrel

Then supposing the orchard to be within three to six miles of market, and a man and team will haul two loads of twenty barrels each in a day. At ten cents a barrel, it would make $4 to pay for driver and team, a fair compensation. So we may place the minimum cost of harvesting and marketing apples under the most favorable conditions at twenty-five cents a barrel.

At present apples are worth from seventy to ninety-five cents a barrel for the fruit The average would be eighty-seven and a-half cents a barrel, but we think that in the best orchards, largely of Baldwins, the average would be higher. At the lower average, the fruit would net the orchardist sixty-two and a-half cents a barrel.

We have seen a number of orchards this year of—say seven or eight acres, that would yield 1,000 barrels, but we will put the best orchards at 100 barrels to the acre, which would net the farmer $62.50 an acre. What other crop has the farmer raised this year that would net him so much?

2. Take the other extreme, with the most unfavorable conditions; the tops trimmed up so that much of the fruit can only be reached from the tops of long ladders; the fruit thin upon the trees, and much of it so wormy, and otherwise affected as to be unmarketable, and the cost of harvesting would evidently be greatly increased. A man could hardly make wages under such circumstances, at thirty cents a barrel. And then, supposing the orchard to be so far from market that but one load could be drawn in a day, and it is very easy to see that the cost would be at least fifty cents a barrel. Putting the yield at fifty barrels to the acre, we only make out a net of $18 75 an acre. While we cannot say that even this low price would not pay for handling, we are obliged to admit that it would not pay very well.

We find that the apple crop is subjected to the same conditions as all other crops If an orchard is planted to three or four of the most profitable varieties, on a soil adapted to their growth, and receives from the start judicious culture, and all the operations of gathering and marketing are conducted economically, there are but few crops grown on a farm that will make a more liberal return to the husbandman. But if all of these maxims of culture are disregarded, the orchard will stand, year after year, a monument of the folly of the owner —*Rural Home.*

Cultivation of Celery.

Several different modes of cultivation have been recommended by different writers But the most approved practice is to plough as deep as the surface soil will allow, laying off the lands so that the double furrows will be five or six feet apart. In these double furrows place a double allowance of well rotted compost, of which wood ashes form a component part. If the compost is not too rich the plants may be set out directly upon it. Otherwise haul in some of the ploughed dirt before setting the plants. These should be placed six to ten inches apart, the former distance for the dwarf variety and the latter for the giant. If the transplanting is done in a wet or cloudy day no protection from the sun will be necessary. But if in a dry time water the plants thoroughly and cover them with a board Few vegetables will bear transplanting better than celery. In two or three days the new rootlets will be pushing, and the boar is can be removed.

Our fathers dug deep trenches, which they filled, partly with manure and rich loam, and on this placed their plants. The object of the trench was to assist in the blanching process. But digging trenches by spade power is work. Besides, a deep trench, unless in a correspondingly deep and rich soil, will bring us to a barren subsoil, on which an artificial bed must be made to place the plants This involves additional labor and expense. With every heavy rain also the plants in the trench will be liable to be drowned out or smothered with dirt washed over them. Land can scarcely be too rich for celery, but the richness should be rather from prior manuring than the immediate application of fresh stable excrement, as the latter inclines the stalks to grow rank, soft and hollow. Soft celery, in comparison with solid, is as rag money compared with gold. Although the vegetable likes moisture, we would not advise artificial watering. In deep and rich land frequent stirrings of the surface are better than the watering pot, as watering inclines the soil to bake and form a crust, thus excluding air and moisture.

Our practice is to plant celery as a second crop, after early peas, putting on a thick coat of compost as soon as the pea vines are removed, which we plough in deeply, and in a few days, generally about the first of August, plough again, thus incorporating the manure thoroughly with the soil, and at this second mowing laying out the lands with double furrows, as before mentioned. Good stocky plants, six inches long, set the first of August, will grow till into November. A small crop for early fall use can be started early in the season. Many sow the seed in a hot-bed as early as March. But hot-bed plants are apt to be slim, sickly affairs, sometimes running up to seed, while those sown in open ground, as soon as the ground is warm and dry, will be found to be more stocky and luxuriant. In either case they should be picked out and set in a bed, two or three inches apart, to become well rooted and well leaved before being transplanted to their final home. It is important that the plants should not be checked in their growth at any stage of life. A stunted plant, like a stunted animal, will seldom recover impaired vigor.

The blanching process may be commenced when the plants are a foot high, or even sooner, and should always be done on a dry day, drawing the earth carefully around the stalks, which may be clasped and pressed gently together with one hand, while the dirt is hauled up with the other. If the mold gets between the stalks it is apt to induce rust and sometimes decay. Some cultivators recommend omiting heaping up the earth for blanching till the stalks have nearly attained their growth, and thus making short work of the blanching. But we prefer to commence earlier, and bring up but little earth at a time. The stalks thus treated will be more solid, and at the same time more tender and delicate. Hoeing and earthing once in ten days or a fortnight will make a little more labor, but secure a better crop.—*New York Herald.*

Repairing Lawns.—The *Practical Farmer* says: "The best way we have ever found of repairing damaged spots in lawns is to trim the edge evenly, so as to make it perfectly square. Remove the injured sod so as to leave an excavation two inches deep, and should there be any holes, fill them up to within two inches of the surface, taking care to make the earth perfectly firm. Then cut good fresh sods two inches thick with straight edges and fill the vacancy. Sods nine inches in width and fifteen inches long can be cut easily and quickly with a spade, and will be of a very convenient size for handling. If they are wanted on a steep bank or the side of a terrace, they should be fastened in position by means of pegs about six inches long, driven through them into the earth."

The Useful Work of Insects.—Insects are useful in destroying dead vegetable substances, which are even more pernicious to man than animals in the same condition, and not only the soft and succulent portions, but even the solid wood is destroyed by them. In the immense forests of the tropics the ground would be covered, and new shoots be choked up by the ruins of trees which had fallen by accident or age, and which it would require ages to disperse without the aid of insects. But no sooner is a tree fallen than one tribe of insects cuts its bark to pieces, another bores holes in it in all directions so that the moisture from dew or rain may stand, decompose, and soften. Others come in to eat off the parts that are softened, and so on until it is entirely broken up and scattered, and this is done with such expedition, that they will, in a few weeks, destroy and carry away the trunks of large trees without leaving a particle behind, and in places where, two or three years before, there was a populous town, if the inhabitants, as is frequently the case, have chosen to abandon it, there will be a very thick wood, and not a vestige of post to be seen.

How to Preserve Grapes.—We have kept grapes perfectly well for some months in the following manner: Take good bunches and pick off all decayed or defective berries, and hang them by threads to sticks placed across the edge of a clean wooden box (a new or thoroughly-cleaned cheese box answers perfectly) deep enough to contain the bunches without touching the bottom. Hang the bunches close together, but without touching each other. Then take fine poplar, oak, birch or maple sawdust, clean and free from moisture, but not overdried, and pour it into the boxes working it with a small rod among the bunches so that they are completely enveloped When the box is filled, seal the ends of all the exposed main stalks with a drop of sealing wax or melted resin. Cover the box first with a sheet of newspaper, and then with the cover, and store the boxes in a cool, dry cellar. About ten pounds may be put in an ordinary sized cheese box. It would have been instructive had you related the methods in which you had failed. We learn as much from failures as from successes.—*N. Y. Times.*

Remedies against Worms and Insects.—The insect question is a very important one; they will destroy us if we don't destroy them. The following modes I use as occasion demands and never fail:—

Melon and cucumber bugs like radish leaves better than any other kind. I sow a few radish seeds in each hill and *never lose a plant.* Earth-worms, cut-worms, white-grubs, and, in fact, all *soft-bodied worms*, are easily driven out by *salt* sown broadcast. You can do no harm with ten bushels to the acre, but a-half bushel is ample. Dry slacked lime is also effectual. Potato-bugs find their "ants" in Paris green—one tablespoonful, flour ten spoonfuls; water, one bucket; mix and *keep mixed*, as the Paris green settles; apply with a watering-pot.

For cabbage-worms apply dry salt if the plants are wet, or strong brine if they are dry.

Turnip flies are destroyed by fine slacked lime, dusted over the field.

But the whole tribe of depredators are wonderfully kept down by *making friends with the birds.* They are the natural enemies of all insects, worms, grubs, &c.

In fighting vermin, we must not try to oppose Nature, but to rather follow her plans, and assist her if she fails.

Live Stock.

Experiments in Feeding.

Prof. Charles Dole, of Norwich University, at Northfield, Vt., communicates the following interesting experiments in feeding cows, to the Vermont *Chronicle*

I have three cows, which I am feeding for the double purpose of getting milk, and at the same time fattening the animals for beef. They are all farrow, one of them has been so for two years. They belong to the common breed, and have been what would be called good milkers.

At the time I commenced feeding they certainly did not give milk enough to pay for the hay they ate. My object in experimenting was to find out, as near as possible, the most profitable feed. I began the experiment December 25th, and continued it for four weeks, with the following result:

The feed the first week was eight lbs. of "shorts," one half-bushel of sugar beets, and ten pounds of hay per day to each cow. I fed the shorts night and morning, four pounds at a time. The beets were given at noon. They were fed all the hay they would eat up clean, three times a day. Thus, the first week I fed the three cows two hundred and ten pounds of hay, one hundred and sixty-eight pounds of shorts and ten and a-half bushels of beets. The hay was of a very poor quality. I estimate the cost as follows: One hundred and sixty-eight pounds of shorts at twenty-five dollars per ton, two dollars and ten cents; two hundred and ten pounds of hay at twelve dollars per ton, one dollar and twenty-six cents; ten and a-half bushels of beets at fifteen cents per bushel, one dollar and fifty-seven cents. Total, four dollars and ninety-three cents. We got three hundred and seventy-nine pounds of milk, making sixteen and one-half pounds of butter, taking twenty-three pounds of milk to make one pound of butter. The butter was of the best quality, and at thirty cents per pound would bring four dollars and ninety-five cents. There was in addition the skim milk, and a steady gain of the cows in flesh.

In the second week the feed was the same as the first with this exception—instead of feeding 8 pounds of shorts I gave them 8 pounds of feed, composed one-half each of corn meal and shorts. This week we got 394 pounds of milk and 18½ pounds of butter, or one pound for a little over 21 pounds of milk. The cost of the feed this week, calling corn as I did, $2 per hundred, was $5.65. The butter was worth, at thirty cents per pound, $5.55.

The third week the feed was the same as the first, with the exception of feeding bran instead of shorts. Amount of milk this week, 380 pounds. Both butter and milk same as first week.

Fourth week same as second, only using bran instead of shorts. Milk this week, 480 pounds; butter, 19 lbs. Cost of feed same as second week, $5.56; butter worth $5.70.

I have not tried corn meal alone as grain feed, but from former experience am convinced that it is not as valuable for milk as either bran alone or bran and corn meal mixed in equal parts.

I have no doubt, from the above results, and my observations since, that no better feed can be given cows than corn meal and bran mixed.

The cows have not only more than paid their keeping in milk, but have steadily gained in flesh, and are now fair beef. Had I only fed common hay, such as I had, they would not have paid their keeping.

Perhaps I should state that all the feed was scalded, and the cold water added, making a pailful at a time for each cow. The butter made was very nice, far better than it would have been with only hay for fodder. I am satisfied that bran is fully equal to shorts in value, and to mix with corn it is better. With bran at $25 per ton, and corn at $40 I would use as much corn as bran, and feed them mixed.

I have said little about the roots fed, my object being to determine the best kind of grain or feed to buy. But so well satisfied am I with the result of feeding roots that I would not on any account be without them. Every farmer would find it to his advantage to raise from 75 to 100 bushels for every cow.

Experimental Pig Feeding.

Although it is a good many years since the enterprising Mr. J. B. Lawes, of Rothamsted, Herts, carried out his experiments in pig feeding, yet the results obtained were so important to farmers, and applying as they do with just as much force at the present day as they did when first published, some reference to them will not be uninteresting. Mr. Lawes published the result of his experiments in the *Journal* of the Royal Agricultural Society, and the article, a most elaborate one, attracted a good deal of notice among scientific agriculturists at the time. Mr. Lawes took, as the basis of his experiments, equal weights of bran and lentils, bran and Indian corn. Particular care was observed in weighing the quantity of food meted out to each pig, all of which were weighed every fourteen days. The experiments were commenced with forty animals, all being about the same age (ten months). Mr. Lawes endeavored, as far as possible, to secure pigs possessing outwardly the same characteristics, so as to make the effects of the different foods become at once apparent. They were divided into a dozen pens, of three pigs each. The following is a list of the feeds allowed:—

Pen 1.—Bean and lentil mixture, an unlimited allowance.

Pen 2.—Two lbs. of Indian corn per pig per day, and an unlimited allowance of beans and lentils.

Pen 4.—Two lbs. of bran per pig per day, and an unlimited allowance of beans and lentils.

Pen 4.—Two lbs. of Indian corn, two lbs. of bran, and an unlimited allowance of beans and lentils.

Pen 5.—Indian corn alone, unlimited.

Pen 6.—Two lbs. of beans and lentils, and an unlimited allowance of Indian corn.

Pen 7.—Two lbs of bran per day, and an unlimited allowance of Indian corn.

Pen 8.—Two lbs. of beans and lentil mixed, two lbs. of bran, and an unlimited allowance of Indian corn.

Pen 9.—Two lbs. of bran and lentil mixed, and an unlimited allowance of bran.

Pen 10.—Two lbs. of Indian corn-meal, and an unlimited allowance of bran.

Pen 11.—Two lbs. of bean and lentil mixed, two lbs. of Indian corn, and an unlimited quantity of bran.

Pen 12.—Beans and lentils mixed, two lbs of Indian corn-meal and bran, each separately, and unlimited.

The pigs received their food the first thing in the morning, again at noon, and at five o'clock in the evening. The food which was limited as to allowance was mixed with a small quantity of that given *ad libitum* in the first two feeds of the day, the whole being, of course, mixed with water. At the outset, two of the pigs in one of the pens contracted some disease in their necks, which began to swell considerably. This was met by a remedy at once simple and effective. 20 lbs. of finely-sifted coal-ashes, 4 lbs. of common salt, and 1 lb. of superphosphate of lime were mixed together, and placed in the troughs of the ailing porkers. The pigs, Mr. Lawes relates, ate the mixture with great avidity, and shortly after the swelling in the neck subsided, and entirely disappeared in about six weeks. Three set of pigs, each divided into twelve pens of three pigs each, were set apart for three series of experiments, with the various qualities of food. In one series barley meal was substituted for Indian corn, and in the third series a trial of dried Newfoundland codfish was made in connection with other foods. The fish was boiled, and some of the other food mixed with it. Mr. Lawes found among other results that Indian corn or barley meal, with a limited supply of bran, was very good food, the bran adding to the value of the manure. In cases where the pigs had access to three kinds of food, viz., the highly nitrogenous pulse mixture, the non-nitrogenous Indian meal, and bran, which is moderately nitrogenous, they gradually discontinued the proportion of their consumption of the first as they approached maturity, and throughout only consumed five per cent. of bran. The average consumption of corn per pig per week was 60 lbs., or about 9 lbs. per day, which produced from 10 to 12 lbs. of meat per week, or about 1½ lbs. per day. There was a very rapid decrease in the rate of consumption of food to a given weight of animal as it fattened. The nearer a fattening animal approached maturity, the greater was the proportion of fat in the gross increase obtained. Indian and corn and barley meal, Mr. Lawes said, contain less than 2 per cent. nitrogen, bran about 2¾ per cent., beans and lentils about 4¼ per cent., and dried codfish 6½ per cent. Mr. Lawes found that the larger the proportion of nitrogenous compounds in the food, the greater was the tendency to increase in frame and flesh; but that the maturing, or ripening of the animal, in fact its fattening depended very much more on the amount of certain digestible non-nitrogenous constituents in the food. It also appeared that some of the cheaper highly-nitrogenous foods would produce a given amount of gross increase more economically than the expensive ones (peas, beans, &c.;) which are usually preferred by pork-feeders. "If the amount of *gross* produce of meat," says Mr. Lawes, "in return for a given amount of food, of a given money value, is alone to be taken into consideration, then, in addition to roots, wash, &c., it would be most advantageous to rely for fattening upon highly-nitrogenous foods, such as dried fish, or animal refuse, or leguminous seeds, beans, lentils, and the like; because not only would the weight be obtained at less cost than by the use of cereal grains, but the manure, the value of which must never be lost sight of in calculating the economy of the feeding process, would be much richer than if the latter were employed. It is to the interest of the farmer to use highly nitrogenous leguminous seeds, and even refuse flesh, if at command, during the earlier and growing stages of his bacon hogs. But if a constant market is to be secured for pork, barley meal or other cereal grain must supersede everything else as fattening proceeds."

Since Mr. Lawes penned these lines a "constant market" has sprung up for pork, and as a matter of fact, the mode of feeding pigs has been greatly improved upon. We cannot say that we favor Mr Lawes' opinion as to the desirability of giving animal flesh, thinking that such feeding tends to taint the meat of the animals; but on other points his views are of considerable value to pork-raisers.—*Eng. L. S. Journal.*

Hints to Stock-Raisers.

The London *Agricultural Gazette* urges discrimination upon stock-raisers in the following words: "In a yard of bullocks there is often one which, for some undiscoverable cause, is obnoxious to the rest. These persecute it, and cause it to lose instead of gaining day by day. Out with it, if quick preparation for the butcher is your object. There is no help for it; one cannot force toleration upon quadrupeds; their masters have not yet acquired the lesson. The same beast, boxed apart, will thrive at once—become a weekly increase, and not a weekly pull-back. Or some one or other of the cattle will not eat his cake, or his roots; it will probably be found that his teeth are out of order, and that cake broken finer, or roots cut smaller, are needed; but careless feeders only curse the stubbornness of the brute, go on as usual, and leave it to take its chance. This generally means wasting, if not death. Or some difficulty of digestion makes one bullock ill to please, and the feeder, like Mrs. Gamp with her patients, won't see that it is his business 'to be particular to a feature,' and continues treating alike, till serious disease has established become established. With pigs such irregularities are frequent. One requires his food mixed thin, and will then drink it down freely, and thrive. Another eats best when the food is in lumps; and then fills itself quickly and lies down to fatten. A brainless feeder treats both the same, and half the profit is lost for lack of observation. A man with eyes parts the pair, and feeds each to his taste. It can never be too frequently repeated that the eye of the owner is needed, not merely daily but several times a day, if grazing is to pay. And respect for individual peculiarities—hard enough to get recognized among men, for men—is absolutely required if a lot of animals are to yield the maximum of profit or minimum of loss."

Feeding up for Winter.

There are two critical periods through which farm stock is called to pass, viz: when grass gets short and frost-bitten in the fall, and again when winter begins to let go her hold, and spring approaches. Digestion suffers after the frost bites the grass, because it becomes innutritious, and stock becoming more hungry as cold advances, they eat greedily of it. It ferments in the stomach, produces flatulence, a staring coat, and sensitiveness to cold. No animal can stand cold and wet, whose digestion is impaired. In such a condition the stomach and bowels become irritable, the blood rushing to them from the surface, producing chilliness, even though the weather be not cold. From the moment that this condition sets in, the animal begins to shrink from the absorption of such flesh as had been accumulated in summer and early fall. These form the principal reasons why approaching winter is a critical period. To avert these tendencies, farmers should provide a patch of blue grass, according to the amount of stock kept, and turn the stock on this for a portion of the day, when other grass begins to fail. This, holding its vitality well into winter, even in the North-west, provides against the sudden change, and consequent strain upon the digestion, otherwise sure to follow. Farmers would do well to place light rations of bright hay within the reach of stock, as early as the appearance of the first frosts. A small amount of this, they will find, will be eaten with avidity and evident relish, and much will be added to the ability of the animal to battle with the coming cold and exposure, by replacing the want of succulent grass, and preparing the digestive organs for the steady used dry fodder and hay during winter.

There is no period when grain can be given with greater profit than during November and December, because it is of the utmost importance to retain what of flesh and vigor has been laid up during the grazing season, by generous feeding and shelter, preparatory to entering the last half of winter. This is always the trying half for such beasts as are not housed and regularly fed during the entire season marked by the absence of good grass.

As stated, approaching spring is the trying period for all stock that has undergone exposure during winter. The appetite fails, because the stomach tires of the homely fare, damaged by exposure during the winter, for which some degree of relish had been maintained through exposure to a bracing, dry atmosphere. Farm stock, if it

receives the care to which it is entitled, will, from the 1st of March to grass, be housed and fed at night and in stormy weather. Stock so kept will shed off early, and give a good account of itself during the entire season. If these precautions are not observed, it will ordinarily take the months of May and June, on good pasture, to put the stock in the condition it should be in on the first of May.
W Farm Journal.

Managing Jersey Cows.

Whether it be the protective measures enforced by the Government of Jersey with respect to the admission of strange cattle to the island, or whether it be that Jersey cattle possess an inherent physical hardiness, it is claimed for them, with good reason, that they are generally freer from disease in their own country than most other breeds of stock. Those reared in higher localities of the island have great hardness of constitution. but it has been demonstrated that those bred in the low-lying districts, where the pasturage is rich, although they have greater capacity of carcase, are almost invariably delicate of constitution. The Jersey farmer treats his cows very much after the manner the Arab treats his horse; his treatment is very gentle and careful. On the larger holdings they are put under cover at nights from the beginning of autumn till the end of Feburary. Except in rough weather, of which they occasionally have a good share in the winter, the animals have daily some exercise throughout the cold season. The feed, in winter, consists of a quantity of straw, from 12 lb. to 24 lb. of hay, and something like 12 lb. to 20 lb. of mangold parsnips, white carrots, or turnips This daily allowance, with the nibble of grass which the herd is enabled to pick up in the warm days, produces a continuous supply of capital well-colored butter, until within a short space, say six or seven weeks, of the time they are expected to calve. The period of gestation is variously regulated to take place in the months of March, April and May. After calving, the animal receives a drink of warm cider, into which is put a little powdered ginger. Quale, whose book on the "Survey of Jersey," is very interesting reading—and who, by the way, states that the Ayrshire cow seemed to be of Jersey origin—indicates that pet cows are indulged with a toast in their caudle. The calf is at once taken from the mother, and brought up by hand-feeding. However it should be pointed out that on the first occasion of calving, the calf ought to be permitted to draw from the udder, for nothing will so effectually empty the udder, or cause the milk-veins to swell to their full extent, as the sucking of the calf.

It would seem that there exists in some quarters a prejudice against cream from the Jersey cow as too rich for making cheese. Mr. Le Feuvre, of La Hogue, tried the experiment two years since, with marked success. It was made from the pure milk, cream and all, as it comes from the cow. It was found that the quantity of milk that would have produced a pound of butter afforded one and a half pounds of cheese. From the quantity of milk which produced a cheese of 20 lb. weight, the drainings of the curds and whey, on being churned, yielded 4 lb of butter This butter was of an inferior quality when eaten with bread, but was superior to any other for the making of pastry; it was peculiarly hard, and of excellent texture for such use in hot weather. On one or two farms besides General Fouzel's, butter is made from clouted cream in the Devonshire mode; but as this is not peculiar to Jersey, it is not noticed further than 10 lb. of butter are usually made in twelve minutes by this process. The ordinary way of procuring the cream is by placing the milk in pans about six inches deep, the glazed shallow earthenware having taken the place of unglazed deep vessels Butter is made every second or third day. Some of the better-bred cows will yield twenty-six quarts of milk in twenty-four hours, from which 14 lbs. of butter can be made in a week. These are, however, the exception, not the rule, the general yield being something under twenty quarts of milk daily. In the flush of the early spring grass the cows are tethered in the field, being moved two or three in the day. We would recommend to those who are at present taking an interest in the Ayrshire Herd Book a consideration of the suggestion of Quale, that Ayrhires have a common parentage with Jerseys. Little is known about the history of Ayrshires and the question as to their origin might bring some Important facts in breeding to light.—*London Live Stock Journal.*

The Horse Plague in Egypt.

Egypt may be looked upon as the very source of all evil, so far as animal plagues are concerned, and it will not be thought anything out of the common way that horses in that country should be the victims of a pestilence which seems naturally to flourish in the East. The so-called "plague" for all historical purposes conveys the information which is desired, but the pathologists ask for something definite, and accordingly when the report of a virulent disease among horses first became current in this country a few weeks ago, we could only hope that in due time some more satisfactory account of the malady would reach us. Up to the present time, however, no conclusion appears to have been arrived at as to the exact nature of the disease which is evidently doing a good of mischief. Whatever the malady may be, its character is extremely virulent, and we learn that it is spreading to all the towns of the Delta Dr Grant, the medical adviser to the Consular Court at Cairo, remarks that plague and cholera epidemics in Egypt have always been preceded by some virulent disease among the lower animals, a fact which he thinks may be explained (at least in some measure) by the unsatisfactory method of disposing of carcases of animals which have died of such diseases. The practice is, we are informed, to cart the carcases into the canals and water sources from which the daily supply of drinking water is drawn. The extreme danger to the public health of this practice is too apparent to need assertion Owing to the inundations, it is not always possible to bury carcases; but is suggested that under such circumstances they may be simply covered with earth, the black earth of Egypt being, it is asserted, a powerful antiseptic.

From the accounts which have reached us, it appears that the disease which is now prevalent among horses in Egypt, was contracted at Massowah by the Egyptian horses which accompanied the expedition to Abyssinia. Some of the animals, over 100, indeed, returned to Egypt and brought the malady with them.

It is stated that more than 1,000 horses have already perished. In one stable between 50 and 60 are reported to have died within four days. A number of cavalry horses are among the victims The primary symptoms are loss of appetite, dulness, quickly followed by distressed breathing, diarrhœa, and frequently death in six hours. When first attacked the animals are apparently affected in the head which is allowed to nod until the lips touch the ground, then an effort is made to raise the head, and the dulness passes off for a few seconds. In the first stage of the disease there is no pain expressed, but in the more advanced form there are indications of pain, the head is kept erect, and the breathing is quick and short.

When the affection has reached its last stage, the animal lies down, panting and groaning until death takes place.

No post-mortem examinations have been reported, and although the affection is described as a malignant form of typhus, there is no evidence advanced in support of the statement. Treatment consists in purgation and bleeding. One dying horse was seen to have been bled from two veins, and it was remarked that it was impossible to decide whether the animal was dying from the disease or the treatment.

It is reported that since the return of the troops from Abyssinia, some cavalry horses have been exported to Turkey, and it is suggested that there is some danger of the disease being imported into Europe; the risk, however is not great, and in this connection it is worthy of notice, that although the affection appeared to be readily communicable among Egyptian horses, Abyssinian horses in the same locality did not suffer.

Nothing of an effectual kind appears to have been done to cure the extension of the disease in Egypt.—*Agricultural Gazette.*

Scale of Points for Guernseys

The following is the new scale of points recently adopted by the Royal Guernsey Agricultural Society, for the guidance of judges in awarding prizes and decorations at the fairs. At first sight the scale and description seem to be more faulty than they really are; but to appreciate it, one must bear in mind—first, that there is but one breed of cattle upon the island; second, that there are very few sires used which have not been prize-winners, or decorated at some of the shows; third, that the Guernseys are valued equally for beef, for milk and for butter, and are bred for these ends, and not, like the Jersey cow, for butter and good looks merely:—

SCALE FOR THE EXAMINATION OF BULLS

		Points.
I	Sire of approved breeding	2
II.	Head, handsome and fine; muzzle, fine and surrounded with a white fillet, nostrils, large and open; horns, smooth, slightly curved, black-tipped, and not too heavy at base; ears, small, orange-colored within, eyes, lively and large	7
III	Neck, fine and well posed, chest, wide, body, cylindrical and deep with the ribs rounded out	3
IV	Line of back, straight from withers to tail, with which it forms a right angle; tail, fine	3
V	Skin, fine, mobile, well covered with soft, fine hair of approved color	3
VI.	Fore-legs, straight, handsome and strong, wide above the knees and small below	2
VII.	Hind-quarters from the hocks to the back, broad and well filled with flesh—the legs not to cross in walking	2
VIII.	Development	4
IX.	General appearance	4
		30

No prize may be awarded to a bull having less than *twenty* points.

SCALE FOR THE EXAMINATION OF HEIFERS AND COWS.

		Points.
I.	Sire of approved breeding	2
II	Head, small; throat, fine, eyes, lively and large, muzzle, fine, encircled with a white fillet, or with a yellow one if the head be black; horns, smooth, slightly curved forward, and with black tips; ears, small and orange-colored within	7
III.	Line of the back, straight and forming a right angle with the hind-quarters; chest, wide and upon a line with the belly	4
IV.	Skin, fine, mobile, and well covered with soft hair, short and of a good color	2
V.	Ribs, well rounded; flank, small, having but little space between the ribs and the hips; tail, fine	3
VI.	Fore-legs, straight and handsome; hind-legs, long and handsome, wide above the hock and fine below; hoofs, small; hind-legs not to cross in walking	2
VII	Udder, large, well up behind; teats, large and well separated; milk veins, large and well marked	4
VIII.	Development	2
IX.	General appearance	4
		30

No prize may be awarded to a cow or heifer having less than *twenty-one* points.

Two points are to be deducted from those required by the scale in examination of heifers, since the milk veins are not well developed. Hence a heifer may be considered perfect with *twenty-eight* points.

Testimony About Cooked Feed.

A. H. Proctor, of Columbus, Ohio, writes to the *Ohio Farmer* that he has been taking some testimony as to the results of feeding grain in its natural and in its cooked state, and he says:

"For the last year I have travelled very extensively among the farmers of Ohio and Indiana, and find that this matter has attracted their serious attention. If twenty acres of corn cooked for feed is worth thirty acres fed raw, then the subject is worthy of the best judgment. For the proof of the proposition, I not only submit the testimony as given to me of hundreds who have practiced cooking corn, oats, barley, buckwheat, potatoes, roots, all kinds of ground feed, etc., but give a few proofs of the many who have, by actual tests, found that on all kinds of grain an average of one-third is saved, and on potatoes and all kinds of roots fully three quarters. Messrs. Wilson & Bro's. dairymen, of Muncie, Ind., cook ground feed for their cows, and say that since they commenced cooking the feed their cows have increased their milk fully one-third. Mr. M. M. Lohr, of Licking Co., Ohio, has practiced, for a long time, cooking corn in the ear for his milch cows, and testifies to the same thing. Mr. T. Middleton, of Union Co., Ohio, a breeder of fine hogs, testifies that two-thirds of the corn cooked, is very much better than the *whole* fed raw in the usual way; particularly for pigs and young hogs. Mr. T. J. Edge, of Indiana, made the following experiment: First, shelled and fed whole; second, ground and made into slop, with cold water; and third, ground and thoroughly cooked. After a fair test with a litter of five pigs feeding an equal length of time, giving each the same time and test, I found that five bushels of whole corn made 47½ pounds of pork; five bushels less toll of corn, ground and made into thick slop with cold water, made 64½ lbs. of pork; the same amount of meal well cooked and fed cold, made 83½ pounds. The second experiment was with new corn in two forms, viz: on the ear and shelled and ground before boiling. Ten bushels on the cob made 29½ pounds of pork, fed in the usual way, on the ground. The same amount shelled, ground and cooked, made 64 pounds.

"From my own observations I find that farmers—in the localities where hog cholera prevail—who cook the feed, lose no hogs, and they assure me that if farmers would adopt it, and at the same time mix in salt, copperas and sulphur, hogs would be healthy."

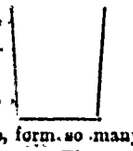
Which Side to Drive On.—One of the anomalies in American customs is that of the driver of a waggon sitting on the right hand, while he always turns out to the right when passing another team. It matters not whether he be on a broad, safe thoroughfare, or on a narrow lane, or crowded city street, his seat is the same. Thus situated it is very difficult to see the exposed wheels in passing, those which require the eye of the driver. Doubtless this is a prominent cause of the many collisions between passing teams, and the wonder is that more do not happen. The custom was brought over by the pilgrims, but like a Dutch sentence the parts got transposed in the translation. Across the ocean the driver sits on the right, but always turns to the left. In copying the practices we retained the useless part, and changed the essential, for some unexplained reason. Possibly our fathers thought to be consistent in the matter, and rather than be right-handed in the sitting while left-handed in the driving, changed the latter to suit. At all events the thing as now practised is every way inconvenient, and is a worthy subject of reform at this time when reforms are so much in favor. And since it is easier to change our position on the seat than to alter the customs of turning to the right, let us henceforth hand our friends up to the right side of the waggon, while we as driver take the opposite side.—*Scientific Farmer.*

The Dairy.

To Make Scald Cream Winter Butter, Including Some Hints for Butter Factories.

(Concluded from last Number.)

You must have the usual American tall vessels to hold the milk—these are set into a trough which receives the cold water, but as steam has to be applied to them, they must set into the through through a cover with holes in it, and each milk vessel must be made slightly tapered as illustrated, and the turned down edges of the steps must pass into and rest in cavities made in the cover, which cavities, when the steam is applied and condensation ensues, form so many water joints to keep the steam from escaping. The cover with holes in it is a fixture and is of course made sufficiently tight to keep in the steam. In the bottom of the trough should be placed a false bottom or diaphragm full of small holes; this is for the purpose of spreading the steam and preventing it from heating any of the milk vessels unduly or faster than the others. Each trough should be large enough to take the morning or evening supply of milk, and as this will of course vary with the season, cover must be provided for the vacant holes.



The troughs must be so placed and arranged that they will become empty when the cold water is desired to be drawn off; the same slope will, as a matter of course, take away the condensed steam.

As each trough has to be heated in turn, each must stand in a separate apartment with good convenience for isolating it from the other troughs, and good ventilation for taking off the waste steam.

Having all prepared, meals milk is placed in its several vessels and all these placed through the holes in the cover of the troughs. Cold water is then let in and kept about the milk until all the cream has risen, when the cold water is run off, and steam from the boiler applied—this is kept on until the desired heat is produced.

But it may be found that it is difficult to make the pans hot enough with sufficient speed. If any trouble arises on this score the steam should be somewhat surcharged by being passed through a hot iron pipe heated in the fire. The steam may be raised to a considerable pressure in the boiler and let on to the pans gently through a small aperture.

When the heat is attained and has been kept up for about half an hour, all the cream will have risen and have consolidated, and then the cold water must be turned on again. When cold, the cream will be found to be of great thickness and solidity and may be removed to the churning tub in the ordinary manner, or the milk may be drawn from under it.

When you have the cream in the converting tub, instead of a churn, it will only want to be stirred all one way with a paddle, and the butter washed and salted—coloring it first if so desired in the manner above mentioned.

Butter made in this way will always be alike and if the heat is carried high enough will always be good and command the very best price.

It will be observed that the labor and trouble are brought to a minimum, and there is no handling or extra work. The steam should be let on with a flexible India rubber pipe in the same manner that water is let on to gardens and lawns from the town water-works.

We have purposely abstained from pictures and plans, as every man who is fit to engage in a butter factory will be quite competent to arrange his works to suit his own ideas and premises.

The only trouble is what to do with the skimmed milk? It is altogether too good for pigs, and as before pointed out, it will not make cheese, although all the cheese constituents (except the grease) are there, but the cheese will not sour and become cheesy. It is believed, however, that if the milk, after skimming, were condensed in a vacuum pan, a cheap and saleable article for town use for inferior purposes, would be easily made.

Condensed milk is now made and sold in New York on a large scale in New York and other American cities, and analysis shows that at all events some samples have lost nearly if not quite all their original butter, which must have been removed in the shape of cream.

The skimmed milk is excellent for household use, puddings, &c., and the condensed vacuum pan milk would no doubt be largely used for tea, coffee, &c., and if canned, an unlimited sale might be found for it with shipping, and sale by the grocers and stores.

The important part of a manufactury of this kind is to to bring it to a *certainty*. Neither butter nor cheese, as ordinarily made in private dairies, can be certainly depended on to produce always the same result, but when the scalding is practised (and practised continually), the same result is always arrived at, and a thoroughly useful and reliable article is produced.

SUBSCRIBER.

Correction.

EDITOR THE CANADA FARMER:—In your last number (which I am sorry to find is the last but one of the Canada Farmer,) in my article on this subject you make me say,—when warning your readers against boiling the milk—"If the milk is heated to boiling, *you will get the full quantity of butter*, and white particles will show in the butter, although it will be good and well tasted."

In this you are wrong,—I said "You will *not get the full quantity of butter*, &c." then as before quoted,—I know this to be a fact, but I never knew the reason until I read the next article following mine, viz., "New facts about butter," wherein the large quantity of water which Dorset and Devonshire butter contains is stated—this butter is mostly made from scalded milk (or at all events a great deal of it is,) but is *never boiled* but only *scalded*. It is now clear to me that boiling the milk deprives the butter of the power of taking up its natural quantity of water, and thus lessens the production. I could never before understand where the loss really was, it certainly does not evaporate, nor does it come away in the buttermilk, so that no real loss in the fatty principle can have occurred, but if the excessive heat prevents the butter taking up the natural quantity of water, the loss is at once accounted for.

"SUBSCRIBER."

Feeding for Milk.

Prof. Dole, of Norwich University, Vt., gave the result of an experiment in feeding milch cows, to the *Vermont Chronicle*, going to prove the special value of corn meal and bran in the production of milk. We condense his report somewhat, as follows:—

I had three cows, which I was feeding for the double purpose of getting milk, and at the same time fattening the animal for beef. They were all farrow, one of them had been so for two years. They belonged to the common breed, and were what are called good milkers. At the time I began feeding they did not give enough to pay for the hay they ate. My object in experimenting was to find out, as near as possible, the most profitable feed. I continued the trial for four weeks with the following result:

The feed the first week was 8 lbs. of "shorts," half a bushel of sugar beets, and 10 lbs of hay per day to each cow. I fed the shorts night and morning, 4 lbs. at a time. The beets were given at noon. They were fed all the hay they would eat up clean, three times a day. Thus, the first week I fed the three cows 210 lbs. of hay, 168 lbs. of shorts, and 10½ bushels of beets. The hay was of poor quality. I estimate the cost as follows: 168 lbs. of shorts at $25 per ton, $2.10; 210 lbs. of hay at $12 per ton, $1.26; 10½ bushels of beets at 15 cts. per bushel, $1.57. Total, $4.03 We got 379 lbs. of milk, making 16½ lbs. of butter, taking 23 lbs. of milk to make 1 lb. of butter. The butter was of the best quality, and at 30 cts a lb, would bring $4.95. There was in addition the skimmed milk, and a steady gain of the cows in flesh.

In the second week the feed was the same as the first, with this exception—instead of feeding 8 lbs. of shorts, I gave them 8 lbs of feed, composed half each of corn meal and shorts. This week I got 364 lbs. of milk and 18½ lbs. of butter, or 1 lb. for a little over 21 lbs. of milk. The cost of the feed this week, calling corn as I did $2 per hundred, was $5.65. The butter was worth, at 30 cts. a lb., $5.55.

The third week the feed was the same as the first, with the exception of feeding bran instead of shorts. Amount of milk this week, 380 lbs.; both butter and milk same as first week

Fourth week same as second, only using bran instead of shorts. Milk this week, 480 lbs.; butter, 19 lbs. Cost of feed same as second week, $5.65; butter worth $5.70.

I have not tried corn meal alone as grain feed, but from former experience am convinced that it is not as valuable for milk as either bran alone or bran and corn meal mixed in equal parts.

I have no doubt from the above results and my observations since, that no better feed can be given cows than corn meal and bran mixed. The cows have not only more than paid their keeping in milk, but have steadily gained in flesh, and are now fair beef. Had I only fed common hay, such as I had, they would not have paid their keeping. Perhaps I should state that all the feed was scalded, and cold water added, making a pailful at a time per cow. The butter made was very nice, far better than it would have been with only hay for fodder. I am satisfied that bran is fully equal to shorts in value, and to mix with corn it is better. With bran at $25 per ton, and corn at $40, I would use as much corn as bran, and feed them mixed. I have said little about the roots fed, my object being to determine the best kind of grain or feed to buy. But so well satisfied am I with the result of feeding roots that I would not on any account be without them. Every farmer would find it to his advantage to raise from 75 to 100 bushels per year for every cow.

Apples for Milch Cows.

Prof. L. B. Arnold contributes the following to the *New York Tribune*:

Apples are an excellent food for milch cows, as they are for all other stock when fed in proper quantity. They give an excellent flavor to milk, and the butter and cheese made from it, and increase the yield of either. A few observant farmers have for a long time been aware of the fact that apples and other fruit are valuable and healthy food for stock, milch cows included, and have been in the habit of utilizing their inferior fruit by feeding it, and the many are beginning to learn its value and are yearly feeding more and more of such fruit as is not fit for market. The quantity which may be fed profitably varies with the size and constitution of the animal fed. A good healthy cow weighing 1,000 pounds can safely eat a peck of apples twice a day, and smaller animals in proportion. The quantity should never be so large as to produce either scouring or feverishness. In either case more harm than good will be done by feeding them. The feeder should begin with not more than half rations, and gradually increase the amount, carefully noting the effect. Taking the appetite of animals as a guide, it is not best to feed either sweet or sour exclusively. If but one could be used, sweet would be the best, but stock prefer to change from one to the other, or to have them mixed at the rate of two sweet to one sour. Either kind will be readily eaten by cows, though a mixture is preferred, and it is believed to be best for them. The best method of feeding is to slice them in a root-cutter and feed in the stable, but they may be fed upon the ground. I have fed a great many apples to cows in the orchard, shaking them from the trees. From haste and hooking each other, the animals are quite liable to get choked, but I never lost a cow from choking with an apple. Though unable to extract an apple from the throat, and severe bloating often occurred, the fruit would so far digest in the gullet as to become softened, and would be thrown out through the mouth. The experience of others may be different, but such has been mine. A potato in the throat has sometimes proved fatal. In cases of choking it is a good plan to prop the cow's mouth open by running a short stick, two to three inches in diameter, crosswise between her jaws and keeping it there by attaching a cord to either end of the stick and fastening to the horn above. By keeping the mouth open the cow is prevented from crowding the obstruction any further down by swallowing, and when softened by digestion and pushed by the gas crowding it from the stomach, it will be sooner thrown out than if the mouth was closed, and this often proves a safeguard against fatal consequences. The value of apples as a milk-producing food varies with the circumstances under which they are fed, reference being had to the quantity of milk which a given quantity of apples will produce. They are pretty nearly but not quite equal to potatoes for this purpose. When cows come into milk in the spring and their milk is not allowed to shrink by drouth or scanty feed beyond what it naturally would by distance from the time of coining in, apples fed in fall as an extra feed, and taken promiscuously as they usually grow, with sweet and sour mixed, will increase the milk in quantity and richness so much as to give a pound of cheese from a bushel of apples, or a pound of butter from two bushels and a half, a peck per day to a cow being consumed. If fed to cows nearly dry, or to those otherwise scantily fed, so that the substance of the fruit is employed to make fat or flesh, the increase in the yield of milk will be less. If they are full fed, and have more recently come in, they will give a better return than above stated. Taking the ordinary condition of cows at the season when apples are ripe, and counting in their value as a substitute for other food, as well as increasing the value of milk, and with butter and cheese at the prices now current, apples as a food for milch cows are estimated at 12 to 15 cents per bushel. I speak advisedly on this subject, having determined by weight and measure the increased yield of a ration of one peck per day each to a herd of 36 cows. To be fed advantageously to cows, fruit must be dealt out with care and judgment. If fed a little too freely, the result will be a loss instead of a profit. When judiciously fed, any kind of fruit, and particularly apples, not only increase the amount and richness of milk, but gives a deliciousness of flavor to both butter and cheese beyond that given by grass alone.

Veterinary.

Abortion in Cows and Hogs.

Despite all the care and attention given to this subject by those directly interested, abortion in cows is alarmingly on the increase, while barrenness is its accompanying evil Abortion being due to so many different causes, it is often difficult to trace and remedy the cause in very many instances and most of us want more light on the subject, which can best be given through the medium of the rural papers, each giving his items of knowledge and experience for the benefit of his fellows. For this purpose let us hear from all who can give aught of interest or value on the subject.

Some cows are apt to abort, being, perhaps not perfect in their parts, though it often results, and perhaps generally, from no constitutional ailment or malformation. In some cases the result might, and may, be attributed to too high feeding, and it is with such herds I have found numerous cases, but the cases outside of this are numerout enough to compel me to think that that alone could not so readily throw nature out of her regular course, and cause a premature delivery of offspring. Standing in an unnatural position for lengthened periods, receiving blows, or from having fallen, will sometimes produce this unfavorable result of abortion; but when we see animals which have had the very best of care, food and attention, abort we are at a loss to assign a definite cause A friend of mine, in Chester county, Pa., one of the most careful men I know of, had two of his imported Guernsey cows to abort in the spring Since that time he can not get them again with calf One of them takes the bull regularly about every three weeks, while the other one never shows any signs of wishing to breed The cows being very valuable ones, the matter cannot be lightly passed over without comment.

Swine, as well as cattle, will abort, though it is not so general, they not being so readily influenced by the same circumstances which seem to cause it in cows. Feeding cotton seed meal will cause abortion in cows and hogs, as I have found out to my cost. This food is very valuable for fattening, but it should not be fed to the breeding stock

The tendency to abort will often breed in the young, and will sometimes be produced in an intensified form; so a person cannot be too careful about this matter where it is suspected this ailment—it so it may be called—exists Very often this tendency breeds out and is effectually subdued by careful and judicious breeding, but the risks are so great that, unless you have something very fine you had better have nothing to do with stock that aborts.

No one breed is more likely to suffer in this way than another, and it is only under certain circumstances and conditions, whatever they may be, that this evil occurs.—*Ohio Farmer.*

Choking of the Ox.

Treatment when the animal is first noticed to be choking the exact location of the obstruction should be found, and the part manipulated with the hand The animal should be drenched with a little linseed oil or gruel, to lubricate the gullet and foreign substance If the above treatment is not attended with success no time should be lost in introducing the probang, a flexible rod six or seven feet in length, made of wire covered with gutta percha; another kind is made of twisted cane. There is a broad cup-shaped end on the instrument; some instruments have an egg shaped bulb on the end, the latter are not safe, because there is danger of it slipping between the gullet and of obstructing the body, and lacerating the former, which will be perceived by the end of the probang being bloody A gag should be strapped on the animal's head to prevent him chewing the probang The probang should be well oiled, passed into the mouth and along the base of the tongue, and by gentle and continuous pressure it will pass into the gullet. When the irritant is found (which is indicated by feeling the instrument stop against some solid body) increased gentle pressure should be made, and in the majority of cases the obstructing substance will give way before the probang and enter the stomach The latter result may be known by the immediate relief and the exit of a great quantity of gas from the paunch, should it, however, not give way, the pressure may be discontinued for a short time, and again renewed, and so on, till success is attained. It requires great caution with these cases, and even with the best care the œsophagus will sometimes be lacerated and death be the result.

In cases where the obstructions are obstinate, and the bloating of the rumen becomes dangerous, the rumen should be punctured with a trochar, which will relieve the immediate danger and give time to the operator. When the distension of the rumen has been relieved, and the probang used without effect, the operator should withdraw the probang and wait fifteen or twenty minutes and try again. Sometimes a third and even a fourth trial will be requisite and success be attained at last. In bad cases, where the probang has been used without success, bleeding may be tried, which has the effect of relaxing the gullet. When too much force has been used, and the gullet is ruptured, the irritant, instead of being driven into the rumen, is buried in the muscles of the neck, and although the probang enters the rumen, no relief is given; the animal is much distressed, blood is found on the end of the probang, and swelling appears on the neck, over the region of the injury In these cases nothing can be done but the immediate destruction of the beast. In cases where relief is given, and success is attained, the animal should be fed on soft food and no roots be given till the gullet recovers its natural tone *Kentucky Live Stock Record.*

Purpura in Horses.

Purpura is not a common equine disorder, and is not so common amongst farm horses worked tolerably steadily, and lodged for the most part in cool, roomy stables, as amongst the harder wrought cab and omnibus horses of our great towns, exposed as they are to extremes of overheat and chill, often severely overtaxed, frequently miserably housed in dark, damp, crowded hovels. Most purpura cases occur as the sequel of protracted, severe, or neglected attacks of strangles, influenza, or, as in your own case, of simple cold. During the continuance of the primary debilitating disorder, probably from some arrested depurative function, noxious or effete materials accumulate in the system, so called fermentative changes ensue, blood-poisoning is established. In these purpura patients the dark blood is found to be deficient in its coagulating fibrine, and hence readily oozes through the weakened walls of its badly nourished vessels, producing hot, painful, abrupt swelling about the limbs and other dependent parts, and purple spots on the thin skin and mucous surface Often the degenerate blood is outpoured on the vascular internal surface of the bowels, thus giving rise to colic pains. The colds often are the exciting cause of purpura. Weakened by his cold, the two days' work to which the horse was subjected doubtless caused excessive perspiration, with subsequent chilling, and consequent arrested action of the skin and other excretory organs, and thus determined the faulty state of blood which culminated in the purpura attack. The treatment, although unsuccessful, appears to have been sensible. It was fortunate you did not bleed the patient. Instead abstracting blood, more of the nutrient fluid, and in a healthier state, is wanted in such cases. Your veterinarian administered the oil to keep up gently the action of the bowels, which are usually torpid; the turpentine is valuable for its twofold service as a general stimulant and as an astringent to the relaxed bleeding surfaces; the iron solution is given as an astringent and tonic; the powder prescribed with the food was probably potash, nitrate, or chlolate, used as alteratives. These medicines, with pure air, warmth, comfortable clothing, and nutritive soft food, really comprise all that can be done in purpura. The day may perhaps arrive when there will be found for purpura and other such blood poisons some direct antidote which shall antagonise or annihilate the special virus with some thing of the same certainty that sulphurous acid arrests the vinous fermentation, quinine controls ague, or that vaccine lymph prevents or mitigates small-pox.—*North British Agriculturist.*

Castration of Adult Horses.

Age is no barrier to castration; but in adult animals in hard condition there is greater risk than in young undeveloped colts on grass or in a straw yard. The essential preparation consists in restricting the animal for two or three days mainly to a mash diet, so that his bowels are comparatively empty, his dung relaxed, and fever symptoms less apt to appear. The season for such operations is unimportant, but very hot weather, and cold frosty weather, with chilling north-east winds should be avoided. For all such services the educated veterinarian should be preferred. Besides the manual dexterity which many blacksmiths, farriers, and cutters possess, he should further bring the anatomical knowledge and technical training which will enable him to discover any peculiarities of conformation in his patient, and ensure due provision being made against untoward results. Before throwing down an old horse special examination will have to be made for rupture (hernia) or tendency to rupture—a circumstance which has been overlooked by ignorant or careless practitioners, and which has resulted in the fatal protrusion of the bowels. Where rupture is present, the risks of castration are increased, protrusion of the bowels or inflammation are more apt to supervene, and the covert operation with the clams will be requisite Indeed, in castrating adult horses, it is a wise precaution to keep on the clams for eighteen or twenty-four hours after the operation; but these and other important practical details must be left to the sense and forethought of your operator.—*North British Agriculturist.*

Inflamed Bowels in Horses.

If treatment is to be of avail, it must be adopted in the very outset. Provokingly it is often difficult to foretell whether we have to treat a simple attack of colic, which, although violent and serious to appearance, is usually curable, or this enteritis which runs its rapid and hopelessly fatal course. The clinical thermometer marking a permanent rise of several degrees is the chief reliable indication of the more serious disease having set in. It is a wise precaution carefully to watch any horse returned from a long journey, subjected to protracted fast, having been irregularly fed, or receiving food to which he has been unused. If still indisposed to eat, breaking out into irregular prespiration, whisking his tail, and exhibiting other symptoms of colic, the clinical thermometer should at once be used, and he should have a soap and water clyster, a pint of mixed castor and linseed oil, with two ounces of laudanum, hot fomentations to his belly; whilst if the symptoms do not abate in an hour, and the temperature, as tested by the thermometer, continues to rise, the fomentations may be suspended, the belly well rubbed with mustard paste, and opium, belladonna, and small doses of aconite given every hour. Morphia subcutaneously injected is sometimes recommended. Bleeding from the neck in the earliest possible stage is thought to hold in check the fast increasing congestion and stay the internal bleeding. Theoretically, when early used, bleeding should be the most prompt and powerful means of antagonizing such seizures, which, as already indicated, resemble apoplexy rather than inflammation. Where bleeding and other remedies are successfully used, the cases we believe, when carefully diganosed, turn out to be colic in some of its various forms. It is doubtful whether horses ever do survive an attack of the so-called mucoenteritis which we have endeavoured to describe.—*North British Agriculturist.*

Medicating a Pig.—At a recent meeting of an English farmer's' club, Professor McBride spoke of the difficulty of administering medicine to a pig. He said: to dose a pig, which you are sure to choke if you attempt to make him drink while squealing, halter him as you would for execution, and tie the rope end to a stake. He will pull back until the rope is tightly strained. When he has ceased his uproar, and begins to reflect, approach him, and between the back part of his jaws insert an old shoe, from which you have cut the toe leather. This he will at once begin to suck and chew. Through it pour your medicine, and he will swallow any quantity you please.

Blinders on Horses.—An English journal disposes of the practice of using blinders on horses in the following trenchant terms:—"We never could see what vice or deformity lay in a horse's eye that should make it necessary to cover it up and shut out its owner from at least two-thirds of his rightful field of vision. The poets say that old age looks backward, but we never heard of such an idiosyncrasy charged upon horses. The theory that a horse is less apt to be frightened when shut out from everything behind him we suspect to be a fallacy, else saddle horses and war horses would be duly blinded. Every horse is as familiar with his own carriage as with his own tail, and as far as his 'personal' fortitude is concerned, is no more disturbed at being pursued by one than another. As for other scarecrows that come behind, they are mostly familiar to the animal, and the more fully the horse can perceive them the more quietly does he submit to their approach. Then it is such a pity to cover up one of the most brilliant features of this most brilliant creature. The horse has borne such a hand in the civilization of this rough-and-tumble world that it seems not so much a cruelty as a discourtesy, as well as a disgrace to hide his form with embarassing toggery. No wonder we estimate the force in the world as 'horse power;' no wonder the Romans and Germans, each in their own language, designated their aristocracy as riders; no wonder their descendants made chivalry a synonym for their highest virtues. Let the horse be given his due, and unblinded.'

The Poultry Yard.

Cull out Your Stock.

All the early hatched broods are now large enough to enable the breeder to tell, with tolerable precision, which breeds will never be suitable for the breeding pen.

The best use of such is the gridiron or pot, and the earlier it is done, after arriving at eatable age, the more economical it is. A good fattening pen is a desirable adjunct at this time. If the culls are to be marketed, the smaller these fattening pens are, the better If to kill for family use, as needed, they ought to have an outdoor run for the flock, and be penned up in a dark coop for ten days or more before killing.

We are not aware that it is not an easy matter to pick out birds to be given to the cook, after feeding and caring for them all the season. Having made pets of them, it seems almost cruel to turn them over to the executioner; but knowing that it must be done, it were best done by the master's hand and judgment.

In making such selections, first take out every disqualified bird, whether from malformation, foul feathering or other cause, bearing in mind, however, that varieties, which, in their chicken feather, appear foul, are, when in adult plumage, free from such seemingly disqualifying traits. Remove from the main runs all inferior chicks; such birds as one would be quite sure would never score enough points to be a prize winner in an exhibition room.

This done, you may look with pride on your stock, and also have the pleasant satisfaction of knowing that, when friends call to see your yards, you are not ashamed to show. It is wonderful how much a flock of chickens is improved in appearance by taking out the "cull."—*Poultry Bulletin*

Rouen Ducks.

The London *Agricultural Gazette* in giving some directions to a breeder of Rouen ducks, says: "Rouen drakes and ducks should be the counterparts of wild ducks in color. The drake should have a narrow white ring round the neck—a broad one is a defect. The duck must have no ring, if she have, she should go into the kitchen. She must not be bred from. The duck must have the dark bill, with yellow sides and point; leaden or green bills are both disqualifications. Duck and drake alike must have dull orange-colored legs; they cannot be too large. Oats and barley are good food. The young want meal, gravel and growing grass, put in a shallow vessel with water; the same is good for adults. A little raw meat adds much to their weight.

A Novel Artificial Mother.

Should you think that the following expedient, which proved successful in rearing a brood of chickens, may be interesting to any of your readers, who might find occasion to resort to something of the same kind under similar circumstances, I place it at your disposal for publication if you see fit: A Cochin hen that had hatched a brood of my Golden Polish chickens suddenly died when the chicks were very young, and I fully expected to lose them all, they being with their mother in a coop about two and a half feet square, in the open air night and day, when the idea struck me t' I thought might give just a chance of saving them, viz.: in the corner of the coop farthest from the wired front I placed a little box without a lid, about nine inches wide, inverted, resting on the floor of the coop, with an opening made in one side large enough to admit the little "orphans" one at a time; about three inches of perfectly dry warm sea-sand was placed on the floor, inside the box, for them to nestle in, and a few grains of canary-seed to tempt them inside. First one, then another, ventured in, till all were huddled together, closely packed, embedded in the warm sand. After the first experience of the nest no inducement was required, they regularly toddled in to sleep, and at intervals during the day, burrowing in the sand, leaving nothing visible but eight or nine little heads peeping out of the sand and each other's fluffy feathers. The sand was not warmed a second time, and the brood with one exception, throve capitally, this simple artificial mother proving all that could be required. As they began to get too large to be able to get into the little box altogether, some took to roosting on the top of it, turning out at intervals others from the inside, who were then forced to change places. For a week or so I had the front of the coop at night covered with a piece of matting; in all other respects the birds were treated exactly as if the hen had been with them, except that till six or seven weeks old they were not allowed to roam beyond a small run wired off in front of their coop. After this I think Golden Polands must be admitted not only to be pretty hardy, but to set an admirable example of making the best of things under adverse circumstances, though possibly from a moral point of view their total disregard to the loss of their mother might be objectionable.—*Cor N. Y. World.*

The Origin of the different Breeds of Domestic Fowls.

It is well known that different countries have their peculiar breeds, which generally take their names from the place they inhabit, or from which they were imported, or from some peculiar appendage, formation or characteristic of them; as the Dorkings, from Dorking, in England, the Houdains, (pronounced Hodans) from Houdain, in France, the Black Spanish, or, as they are called—everlasting layers—from Spain, the Polands, from Poland, the Shanghais from Shanghai in China; the Buff and the Partridge Cochin Chinas, from Cochin China; the Siberia or Russian fowls from Russia, the Malays or Chittagongs, from the Malay Islands; the Javas from the Island of Java, the Columbians, from Columbia in South America; the Barbaries, from Barbary; the Dutch fowls or every-day layers, from Holland—so named from their persistency in laying and disinclination to set, the Bolton Grays and Bays, from Bolton in England, the former known also as Chitteprats (or Cheteprats) or Moonies; the Sussex fowls, from Sussex County in England; Guelders, from the province of Guilderland, in Holland, and from Belgium; the frizzled fowls, from Java and Eastern Asia; the Shakebag, sometimes called Shakbag, or Duke of Leeds fowl—a large parti-coloured fowl with a black crest, supposed to be a cross with a game fowl. They were celebrated fighters, and were carried in bags to cock-pits, where their owners shook the bag containing them as a banter to the owners of other fighting fowls, and hence they were nicknamed Shakebags. The negro fowl, from Africa distinguished for its black comb, wattles, skin, bones and feathers, though the flesh is white and tender, but being ungainly in appearance and without profitable qualities, a cross between it and other fowls is deteriorating, and hence they are not desirable inmates of the poultry yard; the barnyard or dunghill fowls are the offspring of promiscuous crossings of the Malay, Dorking, Poland, Spanish and other fowls. Dr. Bernstein enumerated eight distinct varieties of them, viz: the small-combed, the crowned, the silver-coloured, chamois-coloured, slate-blue, ermine-like, widow, with tear-like spots on a black ground, fire and stone colored. Crossings with more recently imported breeds have added to these varieties. The Dominique or Dominica fowls are supposed to be from the island of Dominica in the West Indies, but are ranked with our native breeds and are supposed to be superior breeders; Leghorns, from Leghorn in Italy; Creve-Coeurs, from France; silky fowls, from China and Japan—remarkable for the silky texture of their plumage; Hamburgs, from Hamburg in Germany, with a number of varieties including gold and silver pencilled Hamburgs; Brahmas or Brahma Pootras, from Asia—named after the Bramah Pootra or Burampooter river there; pheasant fowls, or pheasant Malay fowls, from the Malay Islands, are said to be a cross between the pheasant of the woods and the domestic fowl, but never reach a second generation; creepers, a very small variety of the Bantams, with short legs the creepy is probably a cross with the Siberian or Russian fowl, which has also short legs; the jumper, mentioned by Buffon, is another of these diminutive races, and are so shortlegged that they are compelled to progress by jumping instead of stepping. Rumpkins or tailless fowls are supposed to be a distinct species, and are acknowledged to have descended from the wild breed of Ceylon.—*Elmira Husbandman.*

The Apiary.

Artificial Swarming.

R. W. Harrison gives two plans for artificial swarming, in a late number of the *Bee Keeper's Magazine*, as follows.

"1st. In the spring I double up all weak swarms, making them strong in numbers at once early in the spring, as soon as honey begins to be plenty I use hives with double tier of frames, securing eighteen frames in each hive; by doubling the weak they are enabled to fill their eighteen frames early, as well as the strong swarms. Then as soon as all the frames are full of brood and honey, I have a fertile queen reared in time for swarming. I then take out nine frames with adhering bees, that have bees nearly ready to hatch out, place them in an empty hive, carry it away some distance till next day. I put the other nine frames in the old hive with their queen, and place on top nine more frames for surplus honey. All the old bees from the removed hive will return next day, leaving only young bees with the new swarm. I then take a fertile queen and sprinkle the queen and bees with sweetened water sented with essence of peppermint, put in the queen, and the job is done; done in the natural way on the old stand. To swarm artificially by dividing, have stores for cold snaps or rains, and in good seasons both swarms will give me surplus honey, and sometimes a subdivision can be made giving four swarms. The experienced and careful beekeeper only should attempt a subdivision

"2nd. Unite the nuclei in the fall. I have some of last fall, made in that way, as good swarms as any in my apiary. Now for the evidence in natural swarming; your time spent and anxiety in watching is an item not to be despised. After you watch and wait till your patience is worn threadbare, you will, perhaps, have the mortification to see them circle around till their queen comes out, and then buzz in your ears, 'farewell, vain world, I'm going home.' You will probably lose ten per cent. absconding. And the loss before referred to, i.e., leaving after they are hived three or four days, is item No. 2, and no inconsiderable one. And sometimes, in spite of every precaution, they will literally swarm themselves to death. I have heard men say, and many writers declare, they can prevent so many swarms issuing. It is all bosh. I have known them to swarm four or five times apparently for amusement, and to annoy their busy owner. They get such a mania for swarming, that nothing short of fire would stop them, and not that till their wings are singed off, and then perhaps they might try the crawling process to accomplish it. Some will think this putting it rather strong; it may be, but not stronger than the mania for swarming sometimes is. So upon the whole the loss is considerable. Now, with artificial swarms, there is no time lost watching, no anxiety; you can attend to business that can't be attended to in waiting for them to swarm naturally; you lose no swarms absconding, your increase is sure, and safe if the season in the fall is unfavorable; you lose none by starvation or leaving after they are hived several days; they have stores in advance; you never have them swarm themselves to death, or fall a prey to the moth miller.

"So, in summing up the evidence, I find the shortest and surest road to success to be artificial swarming, i.e., to the practical and experienced apiarian, the inexperienced should not undertake it except by way of experimenting, and adopt it as they learn."

BEES' WAX.—Huber thus sums up the conclusions of all his experiments upon bees' wax: (1) That the wax comes from honey. (2) That the honey is also a food of the first necessity for bees. (3) That it is the saccharine part of the honey which enables the bees to produce wax. (4) That raw sugar yields more wax than honey or refined sugar. (5) That the dust of the stamina does not contain the principles of wax. (6) That this dust is not the food of adult bees, and that they do not collect it for themselves. (7) That flowers do not always contain honey, as has been imagined; that this secretion is subject to the variations of the atmosphere, and that the days when it is abundant are very rare in our climate. (8) That the pollen affords the only aliment which is proper for the young, but that this substance must undergo a peculiar elaboration in the stomachs of the bees, to be converted into an aliment which is always appropriated to their sex, their age, and their wants; since the best microscopes do not show the particles of pollen or their coverings in the liquor prepared by the working bees.

SAGACITY OF BEES.—A lady relates in an exchange the following story: Her father once brought home a molasses hogshead, to be used as a water-tank. On washing day her mother said, "Let's throw the suds into it, to soak the molasses from the bottom." The instant she had done so she exclaimed: "Oh, I have drowned hundreds of my neighbors' bees!" The hogshead was black with bees that were busily appropriating the sweet from what they must have considered an enormous blossom. The good lady made haste with her skimmer to skim the bees from the top of the water, and spread them on a board in the sunshine; but they seemed drowned and nearly dead, and she was very sorry. All the bees that were around the hogshead had flown away at the dash of water, but in a few minutes they returned, accompanied by scores of others. They immediately went to work upon the unfortunate bees, turning them over and over and working upon them constantly with their heads, feet and antennæ. The result of their busy labors was that one after another gave signs of life, stretched its limbs and wings, crawled about, dried itself in the sun and flew away. There were as many as would fill a half pint cup at first, and there remained only about a dozen hopeless cases beyond the efforts of their brothers.

The Canada Farmer

TORONTO, CANADA, DECEMBER 15, 1876.

THE "WEEKLY GLOBE AND CANADA FARMER."

With this issue the CANADA FARMER as a separate publication ceases to exist, it having been amalgamated with the WEEKLY GLOBE The entire staff of editors and correspondents of the CANADA FARMER will also be transferred to the staff of the combined papers which will hereafter appear under the name of "THE WEEKLY GLOBE AND CANADA FARMER."

The CANADA FARMER was brought into existence at a time when there was an urgent call for such a paper. A more general interest in, and the great necessity felt for a thorough reform of our system of agriculture had just begun to manifest itself. In these regards a very great change has been achieved and the CANADA FARMER has been of the greatest assistance in the good work, having always been among the foremost to urge the introduction of new and improved systems. Its usefulness and influence have been great in the past and they are in no whit impaired at the present day. Its circulation has been good, and especially for the last two years steadily increasing. But in these days of easy communication it is becoming more and more apparent that monthly publications are getting to be anachronisms. Farmers want their papers now at intervals no longer than a week and indeed it would surprise many persons to learn the number of farmers who take a daily paper.

But the grand reason for uniting the CANADA FARMER with the WEEKLY GLOBE was the recognition of the facts that a very large number of farmers will not subscribe for more than one paper from the capital beyond their local journal, that the option between the two publications was usually made in favor of the GLOBE, and that the valuable agricultural information given in the CANADA FARMER was thus lost to the very class who could best profit by it. Feeling that the farming interest is the first interest in the land, and that its prosperity means the prosperity of everybody in it, we consequently felt it a duty as well as a gratification to transfer our labors for the advancement of our greatest national industry to an auditory of over forty thousand subscribers and six times as many regular readers, from one not approaching to it in numbers or influence.

The mechanical difficulties which once stood in the way of illustrating the WEEKLY GLOBE—and illustrations are indispensable to agricultural journalism—have been surmounted. At the time of starting the CANADA FARMER these difficulties were insuperable and were among the chief reasons why an agricultural journal separate from the WEEKLY GLOBE became necessary This difficulty having been overcome, and an immense improvement having been made in the form and contents of the WEEKLY GLOBE—especially as respects its agricultural pages which will now take rank with the best in the world—the CANADA FARMER is no longer indispensable. These facts the publishers have seen fit to recognize while yet the latter journal is vigorous and valuable, rather than wait to have them forced upon their attention hereafter.

Every pains will be bestowed upon the combined journals to keep them at the head of their class. Nought now remains but to acknowledge gratefully many expressions of regret from readers at the disappearance of the CANADA FARMER, and to express the hope that in its changed form it may be as welcome and as valuable to them as it has been during the twelve years of its previous life.

Dairy Trade with England.

The increasing consumption of fresh milk in the cities and towns of Great Britain is beginning to attract considerable attention. Ever since the adoption of the railway "can" system, but more especially owing to the improved methods of preserving milk in transit, the trade has been, gradually it is true, but nevertheless steadily assuming large proportions. The consequence is that already the butter and cheese interests are beginning to feel the inevitable drain, the sale of the milk proving, under favoring local circumstances, much more profitable than its manufacture into butter and cheese. To what extent the new departure will affect the general market, it is of course premature to predict. That it will affect it, in exact proportion to the development of the milk-delivery trade, there can be no question; and this is the point at which the subject becomes peculiarly interesting to the Canadian dairyman; for, anything likely to affect the quality or quantity of butter and cheese made in England becomes at once an object of interest to those engaged in the business on this side the Atlantic. Cheese-making in England is admittedly the least remunerative branch of the dairy trade, and it is the manufacture of the choice and high priced article alone that yields anything like an adequate return for the labor and capital employed. The gradual abandonment of this branch of industry in England, and our recent successful experiments in the matter of supplying the British market with fresh meat, should prove incentives to stock-raising by our Canadian farmers. For very many years to come we must continue to be exporters of precisely such edible articles as the masses of Great Britain require and must have. We cannot, therefore, afford to prove recreant to our own interest by allowing others to step in and occupy the gap which, in the very nature of things, we are so abundantly able to fill.

To Our Exchanges.

Our brother editors will please note the consolidation of the WEEKLY GLOBE and CANADA FARMER, and those of them who do not already receive the WEEKLY GLOBE in exchange, and who wish to receive the combined journals, will oblige us by continuing to send their publications addressed "GLOBE," Toronto, Canada.

Notes from Stevensville.

EDITOR CANADA FARMER.—Allow me to make a few remarks on the purchase of low-priced articles, which will always be found dearest in the end. I don't care what you buy, always take the best, be it stock, machinery, clothing, or land; you will never regret the outlay for a good article, but will be certain of disappointment if your sole aim is to buy low. I have kept house for forty-five years and know whereof I speak. Forty-three years ago I paid ten dollars more for a clock than was paid for some others at the same time. Mine has kept good time ever since while its cheaper rivals have all "gone up," after having cost more than the difference for repairs, and then, they never were satisfactory time-keepers.

Better till one acre of land as it ought to be than five or ten in a slovenly way. This is why I have always contended that every agriculturist should take one or more good agricultural papers in order that he may learn from them how to do everything in the best manner.

Of late years, and up to the present, our hay crops have been turning out poorly. Long ago I remember my land produced two tons per acre, but lately I have had only from a quarter to a ton per acre, except this year when the yield was up to the former quantity on twelve acres. These twelve acres were summer-fallowed, the thistles all killed, and had a sprinkling of rotten manure just before sowing. The ground was also well pulverized with harrow and roller, and the seed put in with a drill. One half the plot had some ashes applied to it sixteen years before and that half yielded one ton more hay than the other. The whole was well drained I know other fields, in every respect as good as mine, that did not turn out as successfully, simply from want of proper tillage and manuring.

I used to keep my land enriched by raising stock; but, since I rented, its crops have failed, and it is now called a poor farm not fit to pay expenses. But the cause of all this is poor management. Had it been farmed as the field above noticed, it would be termed a good farm. Unless land under crop is enriched year by year it cannot keep up.

There is no necessity for selling your hay for less than $12 to $15 a ton at market, or $10 to $12 in your barn, as it will keep as well in the mow as a $10 bill in the safe. Nor should it be sold at any price unless the proper proportion is got back for enriching the land. I would prefer my tenant to grow five acres well tilled and manured, than fifteen in the way it is done in many instances.

One more advice: Let each boy on the farm have a small nursery of his own to transplant when required. He will thus get interested in fruit-growing and be able to prune and graft for himself when he has it to do. Also, give each of them two good lambs when he is say six years of age. These can be put out to double every three years, so that by the time the owner is of age he will have a flock of sixty-four sheep of his own. And not only so, but the very fact of ownership will induce an interest and stimulate to a knowledge that could never be reached by the ordinary principle of going when told and coming when ordered.

PETER SHISLER.

Stevensville.

The Crows.

EDITOR CANADA FARMER.—All, or at any rate, most of us Canadian farmers, know what it is to be annoyed with crows just at the seasons in which their absence would be much more acceptable than their presence. Some time ago a friend in England sent me the following note which reached him from a successful farmer in Somerset. I have not tried the experiment myself yet, but I fully intend to do so next summer, if spared, and, for the benefit of my fellow farmers, I publish it that they may go and do likewise. The writer says:—

"Having some years since published my plan of tarring corn, I not unfrequently have letters of inquiry on the subject; and as it is now so difficult, and in many places quite impossible, to get any boys to work on the land, it becomes more important to adopt any plan by which labor may be saved. I have for (I think) six or seven years adopted this plan, and never knew it to fail, except for beans. It seems that when the skin of the bean becomes soft the rooks will pick out the kernel, but with other corn they cannot do this. Last spring, having a fresh foreman, he persuaded me to drill my oats without tarring, as he did not believe the rooks would touch them. The consequence was, it cost me a pound or two to keep a man pretty much about the field with a gun, and even then the oats were much damaged, whilst a field of barley adjoining, and tarred, was not touched. The plan is this:—Dress your seed corn with blue stone or not, as you like; any way, make the wheat thoroughly wet; then mix gas tar, at the rate of 1 pint to the sack of corn, with a little hot water, throw it over the heap, and thoroughly mix it, so that every kernel is blackened. Let it lie a few hours, and then mix sufficient dry slacked lime with it to absorb any superfluous tar, and prevent the kernels sticking together. It is a good plan to put abundance of lime and then sift it out again, as if there is any stickiness, it is a great nuisance. Too much tar or too little lime cause trouble. As before stated, I have adopted the plan for several years, and never had any difficulty, and the cost of materials cannot exceed 2d a sack."

SUBSCRIBER.

N. Easthope.

On the Preservation of Ice at the Bedside.

Mr. Sampson Gamgee, Surgeon to the Queen's Hospital, Birmingham, in a short article (Lancet, June 10, 1876) calls attention to this subject. His practice for some years has been to cut a piece of flannel about nine inches square, and secure it by ligature round the mouth of an ordinary tumbler, so as to leave a cup-shaped depression of flannel within the tumbler to about half its depth. In the flannel cup so constructed pieces of ice may be preserved many hours, all the longer if a piece of flannel from four to five inches square be used as a loose cover to the ice-cup. Cheap flannel, with comparatively open meshes, is preferable, as the water easily drains through it and the ice is thus kept quite dry. When good flannel with close texture is employed, a small hole must be made in the bottom of the flannel cup, otherwise it holds the water, and facilitates the melting of the ice, which is, nevertheless, preserved much longer than in the naked cup or tumbler.

In a room 60° F., Dr. G. made the following experiment with four tumblers, placing in each two ounces of ice, broken into pieces of the average size of sucking. In tumbler No. 1 the ice was loose. It had all melted in two hours and

fifty-five minutes. In tumbler No 2 the ice was suspended in the tumbler of a cup made, as above described, of good Welch flannel. In five hours and a quarter the flannel cup was more than half filled with water, with some pieces of ice floating in it; in another hour and a quarter (six hours and a half from the commencement) the flannel cup was nearly filled with water, and no ice remained. In tumbler No. 3 the ice was suspended in a flannel cup made in the same manner and of the same material as in No 2, but in No. 3 a hole, capable of admitting a quill pen, had been made in the bottom of the flannel cup, with the effect of protracting the total liquefaction of the two ounces of ice to a period of eight hours and three quarters. In tumbler No. 4 two ounces of ice were placed in a flannel cup, made, as above described, of cheap, open flannel (10*d.* per yard), which allowed the water to drain through very readily. Ten hours and ten minutes elapsed before all this ice had melted.

A reserve supply outside the bedroom door can be secured by making a flannel cup, on the plan above described, in a jug, and filling it with little lumps of ice—care being taken that there is space enough below the bag to allow the water to collect and leave the ice dry. This provision will allow ice to be used during the hottest night, without the supply failing, or the patient being disturbed—two very important considerations. The real therapeutic benefit of ice is only produced in some cases by its free use, and its soothing and stilling effect must be aided by the most perfect surrounding quiet

Letting Land on Shares.

The practice varies with different parts of the Union, where farms are alike in quality and in the required equipments. A common practice, however, is substantially the following. The tenant furnishes the necessary teams to work the land, as well as the implements and farm machinery; he furnishes half the seed of all kinds, and half the animals to stock the farm. He agrees to keep the fences in repair, and to work out or pay the road tax. He has half of all crops and half of all the butter, cheese, pork, beef, &c., agreeing to deliver in the half bushel to the owner of the farm, the half of all the grain, or to draw it to the market, as the case may be, and to deliver or market the owner's half of all other products. The owner, on his part, allows the tenant a house and other buildings free of rent, allows him to pasture his team in summer, and to feed it from the grain and hay belonging to both; he pays the taxes, and in making permanent improvements, such as fencing and ditching, he may incur all the cash expense, such as buying material, and as much more as the two parties can agree on. If seed grain, grass seed, and animals must be purchased, both pay an equal amount for this purpose, which is the same as taking the common increase instead of purchasing. The bargain will vary considerably with the condition of the farm. If well improved and in good order the tenant can afford to do much better for the owner, than if it is in poor condition and requires much extra labour to put it in order. The owner can afford to give a better chance to a good tenant than to a poor one; and he should make him satisfied in order that he may work with courage. —*Country Gentleman.*

Classification of Hides.

Green hides are those which are sent in just as they come from the animal, never having been salted.

Part cured are hides that have been salted, but not long enough to be thoroughly cured.

Green salted are those that have been salted and are thoroughly cured. To cure a hide thoroughly will require from twelve to twenty days, according to the thickness of the hide and the temperature of the weather. The loss of weight from the green state is from 12 to 20 per cent.

Dry flint is a thoroughly dry hide, that has not been salted.

Dry salted is a thoroughly dry hide, having been salted while green.

In green salted hides and skins, those weighing less than 8 lbs. are called deacons; 8 to 14 lbs., calf; 14 to 25 lbs., if plump, kip; but if thin and poor, they are called runnens or murrains, and are sold at the price of hides; all above 25 lbs. are called hides.

A green salted hide is understood to be thoroughly cured, free from salt, dirt, meat, horns, tail, bones and sinews, and before being weighed, all such substances are removed, or a proper deduction is made from the weight, and when the head skin hangs to the hide by a narrow strip, it is cut off before weighing.

All bull, stag, tainted cut, badly scarred, brubby or murrain hides are called damaged, and go at two thirds price, unless they are very badly damaged, when they are classed as glue stock at a much lower price.

A deduction of 10 per cent. made on all branded hides.

In dry hides there are other kinds of damaged, such as moth eaten, sun-burnt or weather-beaten.

It is generally conceded by tanners and hide dealers that over one-third of the value of the hides taken off in the North-west is lost by careless skinning and curing.

As a large proportion of the hides received are green salted, the price they bring as a rule, is made the standard for the price of all other kinds.

A Carpet Pest.

Housekeepers may be interested in learning that an insect called the *Anthrenus scrophulariæ*, which devours and ruins carpets, has appeared in such numbers in Schenectady that the carpets all over that city have had to be taken up and cleaned. In Utica it has caused serious alarm. Carpets are not, however, its only food, as it infests wearing apparel hanging in closets or laid away in drawers. Unlike moths, it is said to prey upon cotton fabrics. It is a very common and destructive European insect, but has not until recently been detected in the United States. Its peculiar forte is the eating of carpets, and hence the familiar name "carpet bug," which it has won. It belongs to the family known as the *Dermestidæ* which comprises several of our most injurious depredators on animal substances and is entirely different in appearance and habits from the well known carpet moth. It conceals itself beneath the borders of the carpets nailed to the floor, and eats away those portions. Occasionally it gets in the cracks of the floor, following which it cuts across the entire breadths of carpets, leaving a line which seems to have been cut by the scissors. It destroys new as well as old carpets, and, if allowed to breed and multiply, may reduce us to bare floors soon.

Professor J. A. Lintner, State Entomologist, describes these interesting *Anthrenus scrophulariæ* as a small ovate object, about one tenth of an inch in length, thickly clothed with numerous short bristle-like hairs, and terminating in a pencil of these forming a tail. It is exceedingly active in its motions, and glides away very rapidly. Like the house-fly it disappears in winter, and eats only during the summer months. He said:

"I captured several of the larvæ and fed them upon pieces of carpets in order to rear them. In September they had evidently matured and assumed their quiescent pupal state within the skin of the larvæ, first rent by a split along the back, for the escape of the perfect insect. At this stage I was led by a study of its character to refer it, in all probability, to the genus *Anthrenus*. Last week I had the great gratification of obtaining from the pupæ the first example of the perfect insect. It was a very minute beetle, approximately one-tenth of an inch in length, but beautifully marked in a prettily arranged combination of red, white and brown. I have, beyond doubt, referred it to its proper genus. The detection of this insect adds to our fauna another species of the dreaded genus of *Anthrenus*, perhaps to equal in its destructive agency the well-known museum pest, the *A. varius* (formerly known as *A. musæorum*), the obtrusive guest of all our collections of natural history, whose ravages it seems impossible fully to guard against and so exceedingly difficult to control."

[This pest, which is called the Buffalo moth, is also committing ravages in New Jersey.]—*Rochester Express.*

Household Art.

There must, it would seem, be something very attractive to the general public in the subject of household art—that is to say, of art as applied to the fashioning and ornamentation of common articles of domestic use—or the homily lately delivered by Mr. Mark Pattison, the Rector of Lincoln, when presiding over a meeting held for the distribution of prizes in the Oxford (city) Schools of Science and Art, would, from its intrinsic merits, hardly have deserved the notice it has received. Mr. Pattison, may be praised for one thing, and that is for having the courage to depart from the stereotyped custom of bestowing undiscriminate eulogy upon schools of art, especially when in connection, as are the Oxford Schools, with South Kensington, upon their objects, upon the students and their progress, and upon the immense benefits that have resulted to the community from the establishment of such institutions. Nevertheless, it is singular that a gentleman who has so poor an opinion of the present condition of English art should have been selected to preside on an occasion, the chief end of which was to mark in certain persons certain degrees of advancement in that art.

Passing over this incongruity, we proceed to consider Mr. Pattison's remarks. He begins by making some sweeping assertions, and by expressing some uncompromising opinions. He thinks that, despite all that has been preached about art for years past, the public are as far from having any real love of art, or any real artistic taste, as ever they were; and that, to judge from the articles in every day use, we are no better, but rather worse off, than our fathers were some five-and-twenty or thirty years ago. Our experience of the tastes of past generations may not be so extensive as Mr. Pattison's; but, with this qualification, we beg leave at the outset to differ from him entirely. Our opinion is that the art products of the present day, taken as a whole, exhibit a vast improvement over those of a quarter of a century ago. This improvement has been so gradual, perhaps, that we have failed to perceive it going on around us. The true artist, whose senses are educated to the highest perception of harmony in design and color, may lament that the general advance in the principles of correct taste should be slow; but even he would admit that there has been and is a real advance. If we could walk down the Oxford street, Regent street, and Bond street of 1850 one hour, and the Oxford street, Bond street, and Regent street of to-day the next hour, we should learn by the contrast what a stride has been taken in the space of a quarter of a century. But surely, despite the opinion of Mr. Pattison, we must all of us feel how much more beauty of design there is expended in the present day upon common objects than there used to be. There is an attempt now to make everything attractive in some way; there was little or none formerly. Of course what may be termed *objets d'art*, costly ornaments, costly services of plate and china, were beautifully and artistically designed twenty years ago, just as they were a hundred, or for the matter of that a thousand, years ago, and just as they are now; but the beauty of expensive articles of luxury is little or no evidence of a taste for the beautiful among the people at large. It is in the multiplication of beautiful designs in objects in every-day use by all of us that the present differ from the past generation. Then, for the most part, there was no attempt to impart elegance to cheap and common articles. A cheap thing, especially if a thing in common use, was ugly. It was not thought worth while to make cheap things to loook pretty and tasteful. The designs for such things, therefore, were uniformly coarse; the association of color, where color was employed, uniformly hideous. Now an endeavor—not always successful, it is true, but an honest endeavor all the same is made to give variety and elegance of design to some of the commonest of objects. Even Mr. Pattison was compelled to admit that the crockery ware in every-day use in the present day is a great improvement upon the similar products of ceramic manufacture in use a generation ago; and yet he would argue that the increase in the number and variety of beautiful designs is no proof of an advance in artistic taste, because it is not the good taste of the buyer or the beautifully-designed article which prompts him to buy it, but simply the good taste of the manufacturer which puts before the buyer a beautiful instead of an ugly commodity. The inference Mr. Pattison would have us draw is that beauty of design has no influence in determining the choice of the purchaser. Granted, merely for the sake of argument, that this is so, what object, then, can the manufacturer have in employing trained artists and designers, and in going to the expense of improving his machinery, in order to produce a beautiful article, when the ugly one would have been equally saleable? Evidently the manufacturer, at any rate, has been educated in art, and is resolved to try and educate others, or he would not be so self-sacrificing. It is something to have educated our manufacturers in art. But is it the case that the public are indifferent what they buy, when they must have the article whatever may be the design of it? We say it is not the case, and that, whether the manufacturers have educated the public, or the public has demanded improved designs from manufacturers, the fact is, not that the public taste is indifferent on the score of beauty, but that it is so far advanced, even in the lower ranks of the community, as to appreciate beauty, though at the sacrifice of cheapness. Our manufacturers have endeavoured—and we give them all credit for it—to give some beauty of design to the cheapest of their products; still it stands to reason that the work of a trained artistic mind cannot be sold at so low a rate as a mere copy, say of some coarse commonplace model. The fact, therefore, that it pays to make articles of every day use tasteful is evidence that even the poor are so far educated in art as to be willing, say, to give a shilling for an elegantly-designed piece of crockery, as a dish or a cup and saucer, when they might buy a common, coarsely-designed piece for something less.

Now, in whatever way the advance in art, as shown by the application of taste to the fashioning and ornamentation of common objects of domestic use, has been occasioned or promoted, the multiplication of good instead of bad models, and the opportunity thereby given to those supposed to be devoid of taste to see artistic products of manufacture and compare them with inartistic, can hardly fail to form some kind of art education. Mr. Pattison, indeed, thinks otherwise. "The presence of beauty alone does not," he says, "educate the eye to see it. Is not nature, with its thousand forms of unrivalled beauty and colour always before us? Has it not been there since the world began? If looking upon grace and beauty would educate the eye, men have had it always before them, even in the most debased periods of the arts. Natural appearances and artistic representations are subject to a common law of beauty. All art is one.—*London Field.*

Stock Notes.

Sale of a Flock of Cotswolds.—Mr. J. L. Gibb, Compton, Canada, has sold Gen. P. C. Mattocks, Portland, Me., his flock of thoroughbred Cotswolds, one hundred and seven head, included a number of imported sheep from the best and most famous flocks of England.

Mr. John L. Gibb, Compton, Can., has just sold to the spirited and progressive breeder, Gen. C. P. Mattocks, Portland, Me., his entire flock of thoroughbred Cotswolds, one hundred and seven in all, including a number of imported sheep from the celebrated flocks of the famous English breeders, Messrs. Cole, Lane, Garne and Walker.

A New Cattle Disease.—A nameless contagious disease has broken out among the cattle in Guilford township, Ill., and is rapidly spreading over the eastern portion of the country. The losses already reported are very large, and combined with the hog cholera, previously prevalent, will cause great financial distress among the stock farmers.

Great Mortality of Sheep in Australia.—An exchange says that a new sheep disease—dropsy, bravy, fluke, or whatever else it is, has arrived at a very early stage, and threatens to exterminate sheep on the seaboard of Victoria. On one large sheep run all the sheep have died. On a smaller run they die at the rate of 300 per diem, and it is painful to travel over the trod for the number of sheep lying dead on it. Several sections have been cleared out by the disease, and on one a number of pet sheep have succumbed to it. Young fat sheep die sooner than old crawlers, and in no two cases are the internal appearances of the dead sheep similar.

Short-horn Sales.

From the *Country Gentleman* we clip reports of the following sales:—

By Mrs. C. C. Parks, Waukegan, Ill., Nov 15.

SHORT-HORN COWS AND HEIFERS.

Fidget's Oxford 13th, Geo. Murray, Racine, Wis	$300
Oxford Bloom 2nd, W. R. Dodge, Waukegan	235
Oxford's Flattery do. do.	300
Flattery 4th, John Dewes, Niles	225
Rosamond 14th, W. B Dodge	450
Imp. 2nd Lady, V. Aldrich, Tiskilwa	515
Lady Gwynne, Geo. Chase & Son, W. Liberty, Ia	500
Vanda 3rd, C. H. Andrews, Youngstown, O	230
Duchess Excelsior 3rd, C. H. Andrews	200
Lillie Locke, S. Jobson, Dowagiac, Mich	200

A number of lots were passed, and fourteen other cows or heifers were sold at less than $200 each. The bull Fidget's Duke of Oxford was passed, and three young b. c.'s sold for $65, $69, and $80 respectively.

SUMMARY.

24 cows and heifers, average $211.70—Total	$5,050
3 bull calves, do 66.70 do.	200
27 head, average $195.55—Total	$5,250
10 Ayrshire cows and heifers, highest price $125—average, $78.60	786
3 Ayrshire b. c.'s and 1 bull, average $24	96
18 Berkshire sows, including one for $105, and one for $90—average, $31.44	566
7 Berkshire boars, including Mark Antony, imp., for $121—average, $29 39	205
17 Berkshire pigs and gilts, average, $12.70	216
Total sale	$7,149

Among purchasers of Berkshires were W. B. Dodge, Waukegan, John Justice, Mechanicsville, Iowa, and J. H. Kissinger & Co., Clarksville, Mo.

By J. R. Shelly and Davis Lowman, Dexter Park, Nov. 16.

SHORT-HORN COWS AND HEIFERS.

Emma 3rd, J. H. Potts & Son, Jacksonville	$700
Victoria 51st, V. Aldrich, Tiskilwa	700
Sybil 15th, J. H. Pickrell, Harristown	500
2nd Duchess of Gloster, A. I. Dunlap, Galesburg	455
Sweetbriar, do. do.	200
Duchess of Athe, J. H. Kissinger & Co.	200
Somerilla 2nd, J. R. Stuyvesant, New York	400
Sonsie Lass do. do.	225
Sonsie Lass 3rd, E. L. Davidson, Springfield, Ky	505
Bonnie Rose 2nd, A. Needmstead, Dubuque, Iowa	200
Seraphina, J. H. Kissinger & Co	405
Athalea, B. B. Groom & Son, Winchester, Ky	300
Phyllis Aldrie, T. C. Pontling Stonington, Mo	205
Cactus 3rd, J. Bond, Abingdon	435
Blanch 11th, do.	400
Orange Blossom 25th, L. Hanna, Wayeland, Ind	705
Welcome Gwynne, J. Bond	500
Princess Gwynne 2nd, C. S. Barclay	230
Sarela 3rd, A. J. Dunlap	200
Duchess Jubilee, E. L. Davidson	300
Duchess Excelsior, A. J. Dunlap	200
Mollie, T. A. Rutherford, Mt. Clair	200
Susan 12th, J. J. Levitt, Mt. Clair	325

The last three on the catalogue were passed, and 21 were sold at prices below $200 each. The bull 4th Duke of Springwood went to G. Vought, Dallyville, for $230, and two others went for $95 and $60, respectively.

SUMMARY.

44 females, average $264.80—Total	$11,650
3 bulls, do. 128.33 do.	385
47 head, average $256.07—Total	$12,035

Of the above it will be remembered that seven were imported heifers, the property of D. Lowman, and Lowman & Smith, Toulon. The average on these seven by themselves, was $548.57—less, it is said, than was expected, though the bidding for them was quite spirited.

By Mrs. W. R. Duncan, Towanda, Ill., Nov. 17.

SHORT-HORN COWS AND HEIFERS.

Imp Maid of Thornhill, Nelson Jones, Towanda	$500
2nd Maid of Thornhill, J. Chorn, Towanda	260
Cherub's Gem, do. do.	400
Count of Oneida's Gem, N. Jones	230

Eight other cows and heifers were sold at low prices, aggregating $705 for the eight, and the bull Belleville Duke to Nelson Jones for $200.

SUMMARY.

12 cows and heifers, average $174.60—Total	$2,095
1 bull	200
13 head, average $176.54—Total	$2,295
10 head of Ayrshires, including one for $105, and four at $100 each—average, $72.50—sold for	725
Total Sale	$3,020

J. T. Gommes' Sale, Paris, Ky.

On Court Day, December 4th, at Paris, Ky, five of the seven head offered of the Goodness family we thought brought fair prices, notwithstanding the complete paralysis of all branches of trade. The two Roan Duchess cows were offered with an upset bid on each, and were withdrawn. We give below purchasers and prices:

Lady Goodness 4th, red, calved July 20, 1869, by Sockburn Duke 4376, dam Lady Goodness 2d by Spotted Bolton; F. J. Barbee, Paris, Ky	$350
Lady Goodness 7th, red, calved March 13, 1872, by Red Duke 4224, dam Lady Goodness 4th, by Sockburn Duke 4376, and cow calf, Lady Goodness 8, red, calved Oct. 18, 1876, by Prince Aldrie, 2 20341, dam Lady Goodness 7th by Red Duke 4224; W. H. Richardson, Lexington, Ky	350
Lady Goodness 10th, red and white calved Jan. 11, 1874, by Grand Duke 5249, dam Lady Goodness 2d, by Spotted Bolton 5376; W. H. Richardson	480
Dame Goodness 9, red, calved June 1874 by Aldrie of Montgomery 1317, dam Dame Goodness by Derby 3393; B. F. Bedford	34

Australia.

Shorthorns in Australia.—From Australia we learn that the third annual sale of Mr. Todhunter's pure Shorthorn bulls took place on the 26th of August at Wambiana, where the herd has been located the last twenty-five years. The attendance was very good. The first lot put up was nine splendid white cows (barren). They were started at 10 guineas, and quickly ran up to 34 guineas each, for which they were knocked down to Mr. C. S. Kirby. Then a commencement was made with the bulls, a beautiful silky-skinned twelve-months-old calf, own brother to Mr. Robert Lowe's Butterfly Duke, by Third Duke of Butterflies, being the first offered. He was commenced at 50 guineas, and after some exciting bidding knocked down to Mr. W. Ostler, of Collic, for 156 guineas. The next bull, a neat level roan, fell to Mr. Orbell for 60 guineas; and the third, a light silky roan, to Mr. Hill for 50 guineas. No. 4, the "plum" of the lot, a red and white bull by Third Duke, almost perfect, and worth 500 guineas of any man's money, went to Mr. Frank Lord, of Ganoo, for 150 guineas. The next bull fell to Mr. Prout, of Queensland, for 65 guineas; and No. 6, a beautiful level roan, was a gift to Messrs. Reaford of Warren. The next two were bargains for Mr. Bird and Mr. Barden, at 37 and 39 guineas; and No. 9, a lengthy light roan, fell to Mr. Kirby for 105 guineas. These nine bulls made an average of 90 guineas, scarcely half their value. Nine more lots by Third Duke of Butterflies, made 21 to 60 guineas; 168 animals sold made a total of £4,925, 11s, or an average all round of within a few shillings of £30 per head.—*North British Agriculturist.*

Correspondence.

Barberry Seeds.—Reader, Ingersoll.—Barberry seeds may be started in nursery rows, and, at the age of one or two years, be transplanted to the hedge row, or the seed may be drilled in where the hedge is grown. In this last case it is best to open a good furrow and scatter the seed well over the bottom of this, so that the row of plants may be eight or ten inches in width. Cover with fine soil. If not thick enough, cut back to the ground during the next fall or winter, and they will thicken up. The cost, place of purchase, &c., may be learned through any seedsman.

The damp cloudy weather of the past few weeks will have had the effect of clothing our meadows and pastures with probably the last growth of the season, and a few greedy farmers will be found foolish enough to graze it to the very last. Nothing can be more suicidal, as any one at all observant must very well know. A heavy matting of grass during winter is a necessary protective to the roots of the plants, and on the protection thus afforded will largely depend the state and prospects of the crop in early spring. Let any farmer who has been in the habit of close pasturing his fields in late autumn, adopt the method this season of allowing his fields to present a bosom of from three to twelve inches in height of compact growth to the winter's blasts and we guarantee a radical cure of the old habit.

Miscellaneous.

Patrons of Husbandry.

The following Granges have been constituted since our last issue:—

531 Avonmore.—John McLaughlin, Master, Avonmore, D. McDermid, Secretary, Avonmore.

532 Cameron.—Thomas Blezzard, Master, Villiers, John H. Cameron, Secretary, Westwood.

533 Cochester.—John Smith, Master, Comber, Geo. Smith, Secretary, Comber.

534 Selwin.—F. J. Bell, Master, Selwyn, W. C. Manning, Secretary, Selwyn.

535 Granthan.—Charles Stewart, Master, St. Catharines, Thomas Keyes, Secretary, St. Catharines.

536 Harcourt.—George McCallum, Master, Lorne, John McFaden, Secretary, Lorne.

537 Centre.—Robert Forest, Master, Newry Station, John G. Robertson, Secretary, Newry Station.

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