THIRTY-SIX PAGES

the FARMER'S ADVOCATE

AND HOME MAGAZINE

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THE FARMER'S ADVOCATE

—AND—

HOME MAGAZINE.

WILLIAM WELD, Editor and Proprietor.

The FARMER'S ADVOCATE is published on or about the 1st of each month, is handsomely illustrated with original engravings, and furnishes the most profitable, practical and reliable information for dairymen, for farmers, gardeners or stockmen, of any publication in Canada.

Impartial and independent of all cliques or parties, the FARMER'S ADVOCATE aims to present to the farmers of Canada with an unbiased judgment the agricultural news of the day.

Voluntary correspondence containing useful and seasonable information solicited, and if used, will be liberally paid for. No notice taken of anonymous correspondence. We do not return rejected communications.

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All our premiums have been duly mailed. Any subscribers, whose premiums have not been received, will kindly notify us when money and new names were sent in, and give what premium was chosen. If now too late to mail, the premium will be duly entered for fall or spring delivery.

Our Monthly Prize Essay.

Our prize of $5 for the best essay on *The treatment of milch cows before and after calving*, has been awarded to Mr. John McClure, Brampton, Ont.

A prize of $5.00 will be given for the best essay upon *the home curing and best method of keeping hams and bacon*. The essay to be the actual experience of the female members of the families of our subscribers, and must be handed into this office on or before the 15th of June, 1883.

A prize of $5 will be given for the best essay on *drying small fruits, apples, &c., the best methed of keeping and preparing for market, and the profits to be derived from such*. The essay to be handed into this office by the 15th of July next.

A Munificent Offer.

Mr. George Whitfield, of Rougemont farm, P. Q., has made a princely offer to the Legislature of Quebec, namely: That he would keep, for the free use of the inhabitants of that Province, 15 pure-bred bulls and one stallion; also to board and instruct 20 students on his farm free, and to pay each student from $30 to $100 per annum for the work performed by them. Mr. Whitfield has engaged five efficient instructors for the different departments; a certain proportion of the students are to be from the French-speaking population. The price asked for these great advantages is $6,000 per annum; this the Government consented to give. We think it would be well for some of the sons of our subscribers to make inquiries, and a short sojourn there would be found beneficial in after life.

Harvesters.

A trial of harvesting implements will take place on the Model Farm, Guelph, during the Provincial Exhibition, from the 24th to the 29th of September next. We hope that the Provincial Board and the citizens and others will make arrangements for the sufficient lodging of visitors. In small cities it has hitherto been difficult to provide adequate accommodation for the large numbers who usually attend our exhibitions. We think it would be advisable for the authorities to provide special fast trains to the neighboring towns and prominent villages. Special trains east and west for two days—Wednesday and Thursday—leaving Toronto and London respectively at 7 a.m., and returning from Guelph at 7 p.m., would be a great convenience to the public, and would tend to the success of the Exhibition. We trust that the managers and Government officials will not again leave themselves open to any accusations of unfairly granting certificates to worthless machines, manufactured by political partizans, as we have already heard complaints of this nature.

The Month.

The season is backward, and, comparatively, vegetation has made but little advancement, and is two or three weeks later than last year. The fall wheat still looks unpromising and as yet has not made a good start to tiller. From various sources in Ontario we hear a quantity has been plowed up and sown to other crops. There have been several causes conspiring to make the wheat crop a failure, but one of the most fruitful, in our opinion, was the condition and temperature of the soil during the winter, and the coating of ice and snow which covered the plant. When a heavy coat of snow covers the land early in the fall and the ground does not freeze so as to check the growth of the wheat, it continues to grow under the snow during the winter, when in reality there should be cessation of all growth until spring. As the functions of life continue and the conditions requisite for plant growth are not present—that is, the plant is excluded from free communication with the air—and as 95 per cent. of a plant's nutriment is derived from the atmosphere, the plant dies from want of air. We should like to hear if any of our subscribers followed our advice of perforating the crust of ice and snow with a stick, as given in our March number, and if so we should be glad to hear from them.

The continued wet weather in this part of Ontario is another warning call to our farmers to drain more—not only sloughs and ponds, but every part of the farm. On heavy, undrained clays, the cold, wet weather has prevented farmers from getting in the potato and corn crop, and hence these are backward. Farmers must drain more if they intend to meet the exigencies of seasons like this.

The humid weather has produced a fine growth of grass, and stock are doing well.

Owing to the cold weather, sheep-washing has been delayed and the wool season has not yet commenced. Spring crops are backward and but little growth has been made as yet. A spell of hot weather this month, with the present rains, will rush on vegetation and crowd the work, but farmers should be equal to the emergency and secure their hands now for the summer's work. From now to the end of August is when our farmers reap the greatest reward for their labor. The season will be short, so farmers should be up and doing.

The question of the "milk supply of cities" is solved by an ingenious Scotchman, named Bowick, who has invented an artificial milk that costs only one-sixth as much as the genuine product of the cow, but yet resembles it so closely as to "deceive even the taste of the calf." With this and oleomargarine to fall back upon, the most conscientious of boarding-house keepers need not worry about the high price of dairy products.

On the Wing.

The Welland and Lincoln Agricultural Society held its spring exhibition 10th and 11th May. There were but few heavy draught stallions exhibited. The prevailing feeling of the managers of this exhibition appears to partake strongly of the race-course, as by far the majority of the horses exhibited were of the blooded stock or their crosses, and the most attractive part of the exhibition was when the competition took place for style and speed. A good race will always draw attention. The mind of man requires pleasure and recreation from a monotonus course, but there is a great difficulty in drawing a judicious line as to the extent the race course should interfere with agricultural exhibitions. It is claimed that money is required to maintain the exhibitions, and a race will bring the money. We find the hurdle races, etc., draw the crowd at Toronto. We know that some Londoners have for the past 18 years striven to make these races a grand part of the attraction, but as yet they have not entirely eclipsed the agricultural departments. To what extent this very alluring and attractive feature should be allowed to control the agricultural exhibitions is rather hard to define.

At Niagara we found the rival feeling strongly existing between the admirers of the Clydesdale and the Percheron classes. It is our opinion that any step taken by the Government or its officials to foster any one class or individual importer, will tend to the injury of farmers as a body. The farmers can judge of their requirements, and the best and most profitable for each locality will be chosen. The Government has tried to force the Shorthorns into localities where they are not half as well adapted as the smaller breeds of animals would be. Could any one estimate the loss to farmers by the over-forcing system on poor lands, it would be appalling. We would strongly advise greater encouragement to all beneficial classes of animals, rather than the spasmodic centralization of all expenditures on only one class, whether on horses, cattle, sheep or swine.

From Niagara we went to Brampton. Here a

STEAM PLOW

was put in operation previous to its being shipped to its work on the prairie. The plow - or rather gang of eight plows — was drawn by a traction engine constructed for the purpose, with a small tender carrying a supply of wood and water running on two wheels, the front part being attached to and carried by the engine. The plows are attached to a strong iron frame, and are so constructed as to enable the operator to guage to the depth required, for one or for the full gang, as he may choose. The plows each have a revolving coulter, and are constructed especially for prairie sod. They are guaged so that each plow turns 12 inches. There had been a very heavy rain the afternoon and night previous to the trial, and the land in the vicinity of Brampton is a hard, tenacious clay. The field in which the trial took place had only been seeded down last year. It had been plowed up in narrow ridges, and water was lying on some parts of the field But despite these great disadvantages, the plows were attached to the tender and a highly satisfactory exhibition was given to the numerous farmers attending. The engine was found to have ample power, and the plows did their work in a satisfactory manner, considering the bad state of the land. One or two trivial minor details were to be improved upon. This is the first steam plow we have seen in operation on this continent. We were better satisfied with its performance than with the working of the steam plow we saw in England, which was drawn by a wire rope and a stationary engine. The traction engine will not work unless it has a good dry or solid bottom to enable the wheels to take a firm grip of the ground; neither will it answer to go through sloughs or deep mud holes. The farmers present did not consider they would come into general use in Ontario, but for breaking up the prairie it was thought they would be a great acquisition. Two brothers named King, from Woodstock, Ont., have purchased this engine and plows. They have 4,000 acres of land near Moose Jaw, Manitoba, and expect to break 30 acres a day with it. They have promised to inform us of the results when they get started. The engine and plows were constructed by the Haggert Manufacturing Co., of Brampton. This firm has long been known as among the first and most enterprising manufacturers in Ontario. We hope to hear such good reports from this new and improved plow that hundreds of them may soon be heard whistling over our vast prairies. We shall let you know of it as soon as we know that it is breaking up the sod in a satisfactory manner.

On the 17th of May we were on

THE FARM OF MR. G. DRUMMOND, OF PETIT COTE,

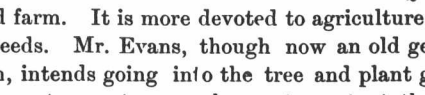
on the Island of Montreal. This farm has been ruled out of the competition for the prize as the best managed farm in this part of Quebec, because it always carries off the prize when allowed to compete. It consists of three hundred acres. Some of the soil is good, rich clay loam, and some is of a lighter quality, having a large quantity of small stones upon it—not large enough to interfere with the drill or plow. The land has been very stony, so much so that it has been fenced with stone, and all the gate posts on the farm consist of single stones, taken from one part of the land. The farm is well drained and cultivated, and trees have been planted along the fence on each side of the field, so that a line across the fields from tree to tree contains just a half acre by measurement. The barn and stable are very convenient, comfortable and well arranged; but these buildings, though good, do not compare with many we have seen in the west. They are low and small in comparison to the barns to be found on many farms of the same size in Ontario. The cellars under these buildings are very extensive, and are used for storing implements and roots. Large barns are not required, because the farm is used as a dairy and root farm, although considerable barley is grown and some oats.

Ayrshire cows are kept. Mr. Drummond supplies milk and cream to the Windsor House. Mrs. Drummond has a convenient dairy and keeps it in nice order. They have a good orchard and garden, and a plain, substantial farm house, built, as most of the farm houses in Quebec are, low in comparison to those in the west. He raises about 40 acres of potatoes. Being only four miles from Montreal gives him such an advantage with milk and potatoes that it is questionable whether we should in reality call this a farm, and this may be the reason that it was excluded from competing; there should be a line drawn somewhere. We find that many of the prizes in Ontario went to farms that were used for similar purposes. Such farms have a decided advantage over others, as manure can be procured from other sources than the farm.

We next called at

THE FARM OF MR. THOS. HENDERSON,

who is the most extensive potato raiser we have met. He generally crops from sixty to ninety acres of this tuber each year. He prefers manuring his land in the fall with dung that has been kept one year and well rotted, plowing it under in the fall. Plows in the spring, drags well, then drills, and plants; then in about a week drags down the ridges with a common harrow; in a few days he ridges up again and lets remain about a week, then drags down with a saddle harrow, made thus:



The potatoes are at this stage just ready to open their leaves. In about a week a cultivator is run through them, and in a few days they are earthed up and left till digging time. We met one student that had attended the Model Farm at Guelph, and he informed us that there was more work and fuss about raising eight acres on the Model Farm than Mr. Henderson had in raising his ninety acres. Mr. H. farms under the four course system, thus: meadow or pasture, oats, potatoes and barley.

The next farm is called

THE OGILVIE FARM,

and contains 200 acres. Mr. Brown is the tenant, and in one respect, he is in advance of the others. He imported one of the large double sized potato planters from Scotland three years ago, but he could not get it to work, and gave it up after a half day's trial in despair. But his mother, an old Scotch lady, nerved him to another attempt, and this time with success, and for the past three years he has used the planter with satisfaction. A firm is now manufacturing them. Mr. Brown supplies the Allan Line of Steamers with milk for the passengers. The above named farmers are noted for their Scotch plows, Clydesdale horses and Ayrshire cattle.

When passing over the mountain we stopped to see the fine stock of plants raised by Mr. McGibbon, the manager of Mountain Park, at which place he is carrying on great improvements.

Crossing the canal, we arrive at the farm and gardens of Mr. W. Evans, perhaps the oldest seedsman in Canada. He has a beautifully situated farm. It is more devoted to agriculture than to seeds. Mr. Evans, though now an old gentleman, intends going into the tree and plant growing next year to a much greater extent than he ever did. Adjoining this is

THE FARM OF MR. J. HICKSON,

the manager of the G. T. R. On this estate we found 4 good Shorthorn cows, 9 donkeys, 9 Welsh ponies, 3 Shetland ponies, 2 imported Clydesdale mares and 19 different breeds of fowls.

Mr. Hickson has 160 acres in this lot; he also has a large farm near New Brunswick, on which he has 400 acres cleared, where he has 100 more donkeys and ponies. He will now move many of them to his Montreal farm, as he has disposed of his Hereford and Galloway cattle.

On the 20th we called at the Veterinary College. Mr. D. McEachren, the proprietor, wished us to to take a seat with him in his carriage, as he was in a great hurry, and was about to leave by the evening train for the purpose of establishing in the North-west a ranch farm for an English company, he having already purchased five thousand head of cattle for the ranch; $300,000, we understand, is the sum to be expended on the new ranch. Mr. McEachren is about to abandon the ranch first taken up by the Cochran Ranch Co., and locate it further south, on the Kootney River, within 6 miles of the U. S. boundary line. This year they raised about 15,000 head of cattle; they also have 500 horses and 120 foals. The reason for moving is to get where there is less snow and frost, as the severity of the past winter caused a loss of 1,000 head of cattle, and the horses were reduced to a very bad condition, but hardly any of them died. The Government leases these ranch companies 100,000 acres for 20 years, but this does not prevent squatters settling and breaking up land if they choose to do so.

We proceeded to the

NEW HORSE EXCHANGE.

This is located at Point St. Charles. Spacious stables are erected, and about 50 horses were in the building, among which were some very fine bred, fast animals, also some imported Clydesdale stallions, one of which was sold when we were in the building. This was a large, 4-year-old grey, his name was Heir-at-Law, sired by Prince of Wales; Prince of Wales was owned by Lawrence Drew, of Merriton, and sold for 1,500 guineas. A very neat and well furnished hotel is erected, with spacious apartments for stock and horse men, and a half mile track is to be laid out close to the exchange building. Mr. Grand, of Toronto, has some very fine horses in the building. Many of the leading stock-men and drovers were assembled here. It is destined to be the mart of Canada.

From this we drove to Raven's Craig, the residence of the late Sir Hugh Allan. One of the horses at this establishment was taken with a prevailing inflammatory disease. There were eleven as fine horses in this stable as one could desire to see. Every arrangement for comfort and cleanliness had been attended to. There were twelve fine vehicles and sleighs in the coach house. The elder of the Misses Allan came to the stable and appeared to take great interest in the welfare of the horses.

From there we drove to a Mr. Ogilvie's. One of his horses has been suffering from this disease for some days, and had been dosed and poulticed, all that could be done for it having been done. Despite this it had become greatly reduced, and stimulants in the form of beer, etc., were ordered for the horse to keep him up.

Mr. Ogilvie is one of a firm of large millers who have their flouring mills running in different localities from Quebec to Manitoba. Many of our readers have seen them, but few could imagine the magnificence of his stable and coach houses. No expense has been spared to construct them in the most approved manner the brass attachments and the painting are in better order than those in some cathedrals we have seen, and floors of the best material, and kept much cleaner and neater than many houses we have entered. The grounds and mansions are in keeping with this splendor.

FERTILIZERS.

While in Montreal we visited a large fertilizing company and obtained the following information: They shipped to the United States last year 150 tons of blood, 1,000 tons of leached ashes, 700 tons bones and 500 tons spent bone black; and 125 tons blood to Germany, besides shipments to England. The sales of superphosphates to Canadians, including seedsmen, for the present year does not exceed three tons. We have also seen in many places both leached and unleached ashes being loaded on the cars for export to the United States. At Kingston we also made enquiries, and found that nearly all the superphosphates made there were exported to the United States and Europe; and one of our largest manufacturers of fertilizers in Toronto, Mr. P. Lamb, does not consider the Canadian trade as worth anything; the bulk of his trade is with the United States. What does this mean? These few facts should cause us to consider.

HOW TO KEEP A HOUSE COOL IN SUMMER.

On our journey we met Mr. Charles Punchard, of Ottawa, who described to us his method for keeping his dwelling and milk house cool during the warm weather: To 1 pail of blood, 1 pound of alum, 16 pounds of whiting, and 20 pails of water; mix cold; stir well, and let stand for 48 hours, and apply to the shingles when they are hot; this application will give the roof a white, shining appearance, which will remain during most of the year, and must effectually reflect the hot rays of the sun. The above quantity is sufficient for a large building. The plan is simple and cheap, and any person doubting its efficiency can test it, trying it upon an old shingle or piece of lumber.

Our English Letter.

Liverpool, May 1, 1883.

With the opening of the St. Lawrence navigation an enormous stream of emigration to the Dominion has set in, and with this singular and gratifying feature—that whilst the total emigration (from this great port at least) has fallen off considerably, that to Canada is largely on the increase. Last Thursday week the first steamers of the season left for the St. Lawrence with no fewer than 3,000 settlers for the Dominion, nine-tenths of them being British agriculturists, and a considerable proportion possessed of substantial means. Last Thursday another contingent of 2,000 followed. Amongst those going forward were 350 picked agriculturists from the neighborhood of Spalding, in Lincolnshire, and they were under the guidance of Mr. Richardson, one of the leading members of the committee of Mr. Arch's Agricultural Laborers' Union. Mr. Richardson took out a party of emigrants from the agricultural districts in 1874, at the time of the great strikes of agricultural laborers in the eastern counties. At that time the advantages of the Dominion were systematically advertised by Mr. Dyke and other agents, and the result has been felt up to the present. Mr. Richardson's son then made a successful settlement in the neighborhood of Ingersoll, and I understand that the bulk of these valuable people who are now going forward will settle in adjacent counties of your province. In fact, all round the prospects for the Dominion never looked brighter. Arrangements have recently been perfected by which you will also receive a most valuable class of settlers from Sweden, Norway, Denmark, Belgium, Holland, Switzerland, Austria and Germany—in fact the cream of the agricultural and laboring races of the European continent, in much larger numbers than hitherto. It may be interesting to note that during the twelve years, from 1871 to 1882, the total number of emigrants from Germany was 999,385, and of these no fewer than 951,704 went to the United States. I am sure your readers will be much pleased that arrangements have been made by the Canadian Government to secure a better share of this immense movement. Whilst many of those who are strong in the arm but weak in the pocket are pushing on to the "confines of civilization," men of more means, who still find it a hard struggle to make both ends meet here, and who hope to bring up their families better, and to live more at ease themselves in the new world, look with favour on your flourishing peninsula.

Efforts have been made of late, as some of your readers may have heard, to bring about an amalgamation between the English Shire-bred cart horse stud-book, and the Clydesdales. The Shire-bred breeders, however, do not view the idea with much favour. Still, it is a noticeable fact that a large number of Clydesdale breeders, such as Lawrence Drew and A. Montgomery, have been recently scouring the English districts for Shire-bred stallions and mares. In fact, they are even picking up likely colts. There is, and will be, increasing difficulty therefore in securing suitable stallions for export to the Dominion. The attempt to introduce the French Percherons into the Dominion is severely deprecated by many of the leading breeders here. They have been tried, I understand, by the Duke of Westminster and several other large landowners, who provide good animals for improving the stock of their tenants. In every case they have signally failed. In Liverpool they were introduced some years ago, but not one now remains, and they could not now be sold here at any price.

From some remarks made by the Duke of Richmond—father of the "Duke of Richmond Bill," which at one time threatened the Canadian as well as the American cattle and meat export trade, in the House of Lords, recently—there will probably be more trouble, ere long, in the same direction. There is still a strong feeling amongst the landowning and farming interests, that all foreign cattle should be excluded from this country. The farmers in Cheshire, adjacent to the Woodside Lairages, where the American cattle are landed before being slaughtered, complain of serious outbreaks of foot and mouth diseases, which they trace, or fancy they can, to the manure, offal, &c., of these cattle. It is certainly singular that a similar state of things was observed in the neighborhood of Barrow-in-Furness some time back, when American cattle were landed there, and the outbreaks ceased when the landing of the cattle there was discontinued. The Americans are making a good stand against any further curtailment of the privileges of their trade; but whatever may be done in their regard, Canadians, so long as they preserve the excellent bill of health which they have so far maintained, are tolerably safe not to be molested. The point of the Act of Parliament as it stands is, that the exporting countries shall use reasonable precaution to prevent the spread and dissemination of diseases. This can be done in the Dominion much more efficiently than in the States, where each separate State has its own laws, and uniformity of action is almost impossible. Knowing this, the authorities here are not likely to relax their restrictions; and most surely, if the shipments from States' ports continue to show as much disease as they have done of late, the landing at all of live cattle from the United States will be prohibited, as shipments from various parts of the continent were at the time of the Rinderpest. A very lively discussion has been going on in the north country agricultural papers as to the relative merits of the Polled Aberdeens and the Galloways. I am not now going into the merits of the controversy; but it is an instructive commentary that even China sees the merits of the former; a Polled Aberdeen bull and two heifers were sent off on Saturday last to the Kaiping breeding farm at Tinsin, which extends over 100,000 acres.

So frightful has been the havoc caused by disease in our sheep flocks, that the Queen, early this spring, prohibited the consumption of lamb this season in the royal household. This has set the fashion, which is, on the whole, approved, though it is rather hard upon those who make the rearing and feeding of early lamb for the market their business. It certainly has not yet had the effect of reducing the price of mutton, for my wife tells me she is now paying 24 cents a pound.

Green Manures.

There are a great many poor soils that can be highly benefited by plowing down green manures during the present summer; and for a buckwheat crop June is the month. The principle of plowing under buckwheat, clover and any other plant, is simply returning to the soil the elements of food absorbed by the plant during growth from the atmosphere; and as this amounts to about 95 per cent. of the whole structure, green manures supply a large amount of nitrogen. The plowing under of a green crop is nothing more than following out nature; the hoarded up supply of virgin fertility in our new lands and in the Northwest, has been from decayed vegetable matter. The gradual de-

composition of such, as in the case of plowing down clover and buckwheat, affords a constant and steady supply of manure to the soil, and the effects of these green manures are more lasting than barn-yard dung on this account. But it takes a long time for green manure to thoroughly rot in the ground. Hence, it should not be expected that—say if a crop of buckwheat were plowed down during the summer—the plant food would become directly available to a crop of wheat next fall, and on this account we think that the beneficial effects of green manuring have been lost sight of, in supposing that any matter can at once be dissolved into available plant food. The effect of plowing down buckwheat, clover and rape, will not probably be seen for several seasons after. There is a mechanical effect, however, of plowing down green stuff besides the mere manurial action, and that is keeping heavy land porous and open. For instance, the big, coarse straw of buckwheat keeps apart the atoms of soil, and thus admits air and thorough percolation of water. So much for the physical effects.

A good crop of clover, observes a noted agriculturist, which has been allowed to stand for seed, will add to the land a fertility for wheat which could not be obtained with the heaviest dressing of guano; but to do this in the best possible manner, the clover must be allowed to come to perfection; must be treated so that it will produce and leave on the ground the greatest possible amount of leaf and root, for in those two portions of the plant consists the virtue of the clover crop. Clover is the very best manure for steep, clayey hills, where the manure is apt to wash away. Our farmers make a great mistake by eating off the clover or cutting a second crop before plowing down. To get the full benefit, as much top should be plowed down as possible.

Buckwheat as a green manure is highly beneficial; although it is not as good or strong a fertilizer as clover, yet the mechanical effects, owing to the coarse straw, are superior for heavy clay land. The middle of June will be an excellent time to sow buckwheat for a plowing-down crop; but the earlier the better, for unless it be plowed under early in August, it will not sufficiently rot to benefit the fall wheat. It should be borne in mind that all soils, to receive the greatest good from the application of green manures, should be capable of bringing them forth with such an abundance as to produce a complete shade to the surface during their growth—when a process of nitrification goes on in the soil—and there should be a large enough mass of vegetable matter to cause rapid and constant fermentation or decomposition when plowed under. With the present scarcity of stock to increase the dung-pile, our farmers cannot do better this season than turning down plenty of green manure to increase the fertility of their soil.

Soiling.

The word "soiling" means cutting green stuff and feeding to stock in stables and yards, or, in other words, following the same farm operation with regard to feeding in summer that is practised in winter. "Soiling" is not followed to any extent by farmers in this country, and hence we have heard several farmers ask what this *soiling* means. Among the cow-keepers around large cities in Great Britain, U. S., France, Holland and Germany, the animals are all fed in stables on the soiling principle. And with a large number of the farmers in European countries soiling is fast coming in vogue. The farmers in France having such small tenures, are almost necessitated in keeping their cattle in yards or stables, in order to keep any number of head, and small farms of 15 acres, by soiling, feed as many cows as a farmer here with three times that quantity, as one acre of grasses, &c., cut and fed in the stall, will support more stock than five acres in pasture. That the greatest production results from soiling must be evident to everybody, and that on small farms where there is but a limited range, it is the most economical method of feeding. There is no use denying that on the ordinary plan of pasturage there is a great amount of land wasted and impoverished. Indeed, with the amount of waste and impoverished grass land, and the undrained and swamp land, which at least is only producing unnutritious, miry feed, it is surprising the amount of stock that could be kept upon the soiling system. When it is considered that Ontario and Quebec are equal in size to Great Britain, France and Prussia, and the Maritime Provinces to Holland, Belgium, Greece, Portugal and Switzerland put together—saying nothing about the Northwest—it can easily be seen the unlimited resources we have for stock feeding, even in the older settled Provinces; but how do we compare with any of the countries mentioned, in stock feeding and dairying, compared with our resources? There is no doubt that our stock and dairy productions, on the smaller farms in this country, could be doubled by attention to a proper system of soiling, as one acre under the latter will keep as many head of cattle as 3½ under pasturage. Of course there is one great drawback to this soiling, and that is the cost of labor, and also the advantage to farm animals by having a free range on pasture. But, then, to counterbalance this, the cattle are protected from exposure to the blaze of a noon-day sun in July, on probably a burnt-up pasture. It is here where the benefit of soiling will be more apparent—when the flush of grass is eaten down in mid-summer, and the pastures are bare, and cows commence to run off their milk. Soiling to this extent cannot fail to be profitable, and would be available to any of our farmers, whether great or small. We do not anticipate that soiling will take the place of pasturage amongst farmers, but it may be used profitably as an aid, or in connection with it.

Take, for example, a few acres of pasture that could keep a good supply of grass until the middle of July, or when our native grasses have seen their best; in addition to this, let an acre or more of ensilage corn be grown, as the case may be. In any kind of fertile corn-land 15 tons of sweet, esculent food can be raised to the acre, and, allowing a cow 25 lbs. a day, it is not difficult to see what number of animals can be fed on an acre by soiling.

Ensilage corn planted in the middle of June, or thereabout, if on good soil, would make a respectable cut by the middle of July, and, as the summer advances, there will be a luxuriant growth, and will last until fall pasturage comes in, if soiling is not altogether depended upon. Besides the corn crop, a rotation of tares, clover and Hungarian grass may be brought in to supply the deficiency in pasturage. We should strongly advise our farmers to try soiling on a small scale, and we are certain they will be satisfied with the results; and be better prepared to arrive at a conclusion how it would be likely to work on a larger scale.

An important consideration in soiling, and especially to small farms, is the manure. By feeding the produce of your land by soiling, you are hoarding up manure in summer as well as winter; and what is most wanted at the present time on the majority of lands, is plenty of dung. Not only is soiling advantageous in this way, but the farmer has a reserve supply of succulent food, especially for such times of deficiency in the grass growth as now and then are sure to come through dry seasons and other causes.

We are fully persuaded that the amount of manure saved by soiling for use upon the field crops, would pay for the time and trouble entailed under this practice.

Hungarian Grass.

The present month offers an excellent opportunity to those who are scarce of meadow, or where the catch has not been good, to sow Hungarian grass. This is not only an excellent green forage crop, but when properly cured, makes a sweet, nutritious hay. We are fully persuaded our farmers do not grow enough. There are various opinions about its nutritive qualities compared with timothy. We do not consider Hungarian grass is as nutritive as timothy, but it bears a far heavier crop to the acre, making up in quantity what it lacks in quality. It is also an excellent crop to clean land and to tone down a piece of land that has a tendency to grow too rank a crop of straw. The trouble about Hungarian grass is that it is not generally cut at the proper time. Half a bushel should be sown to the acre, about the middle of June, and if cut right, makes fine hay, and on good land should yield from two to three tons per acre. It should be cut when in the first blow, before any seed is formed; wilt in the swath the same as clover, and make in the cock. The stalk will then be nearly solid and the hay very heavy, and it will be as green as grass. If cured in this way, it is excellent feed for horses and cows. But if allowed to turn yellow and form seed, it is the same as any other grain, and will, of course, injure a horse the same as if he were fed wheat in the bundle to excess; and for this reason we often hear of the injurious effects resulting from feeding Hungarian grass—that is, when it is cut too old and fed indiscriminately. When harvested at the proper time, there is no more danger in feeding it to stock than clover or timothy. If cut at the proper time, it will sometimes sprout up and make good fall feed, or a green crop to turn under. If an early crop is cut, it may be cut a second time for seed, but it will be short and will scarcely pay. Hungarian grass comes in as a seasonable soiling crop, and every farmer should have an acre or so on hand to feed milch cows and horses when they come up at night. The crop pays.

A Potato Bug Day.

Since the advent of the Colorado potato bug, some twelve years ago, the cultivation of potatoes has been less profitable owing to the additional labor in combating the ravages of this pest, and as labor continues high, so, too, will this tuber be raised at a disadvantage. Indeed, where a large acreage is cultivated the additional labor is so much that the bugs are only partially destroyed, and large armies of them are left to breed and commit their ravages another year. The loss to this continent through this since it first came, if counted up, would be enormous, and we doubt if all the other pests, such as weevil, Hessian fly, pea bug, &c., have done one-half the damage, and according to present appearances this pest is likely to be with us for an indefinite length of time unless more stringent measures are put in force for its destruction. Why it has been perpetuated so long and in such increased numbers is from the fact that there has not been a united effort to stamp it out. Year after year there are always sufficient bugs left untouched by Paris green to keep a good stock on hand. It is often the case that one neighbor makes a complete job in destroying them, and hardly a bug is to be seen on his patch; again, another just works sufficiently at them that his crop may not prove a total failure, and leaves bugs enough to kill half the crop. The consequence is, taking the country all over, the bug appears in increased force every spring. It was thought at one time that after completing a certain cycle of time it would disappear, or that parasitical enemies would prey upon it and kill the

bug off; but it is so prolific that it would take a large number of these enemies for a long time to have any appreciable effect in reducing the number. We believe their extermination will only be affected by an united effort on the part of our farmers from one end of the country to the other, and to this end we propose to have a "Bug Day," similar to the "Planting Day" of our American cousins, in which let every man, woman and child turn out *en masse* and carry on a determined slaughter on these pests. If this is unanimously carried out we venture to say the bugs will have a short stay. Next to the wheat crop, potatoes may be considered the next in importance, as a staple crop, and as forming one of the first necessaries of our table, and as of national importance potatoes are being looked upon as one of our greatest sources of wealth; so the bug question is a vital one, and we hope that the coming season, for the sake of *pro-bono publico*, our farmers will use their utmost endeavors and have a "Bug Day."

The stages of life of the potato bug are three. The perfect insect hibernates during winter, sometimes under rubbish, but generally only a few inches under the ground. They have been found two or three feet below on some occasions. In spring, even before the tender potato tops appear, the bug may be seen flying about in search of food. As soon as the potato leaves appear, the female commences laying her eggs in clusters, and continues for three or four weeks, during which time she may deposit over 500 eggs, so the destruction of one of the beetles is equivalent to killing of 500 bugs four or five weeks later. In warm weather the eggs are hatched in about a week, and then comes the ravenous brood of slugs that look so greasy. In Ontario this larval condition continues for about three weeks, at the end of which time the grub descends into the ground and changes into the pupal form. In from seven to ten days, according to the temperature, it comes forth a full-fledged potato bug or beetle *(coleoptera)* ready to commence the work of egg-laying again. Whether there are two or three broods in a season, depends upon the temperature and the earliness or lateness of the season. In the Southern States there are three broods annually, the last brood of *beetles* going into the ground to hibernate. Further north the *pupæ* (not being far enough advanced) pass the winter in the pupal state and do not emerge until the following spring. It should be a matter of greater importance how many broods of this pest our farmers have to contend with. We think with an early spring there might be three broods here in Ontario, but observations so far only indicate two in the season—at least we think this year is safe enough for only two.

The potato bug is an "older inhabitant" than many are aware of. The first appearance of them in Canada was in 1872, and Ontario was the first to receive an instalment—they crossed the St. Clair into Essex Co. from the west. Although known as early as 1824 as a distinct species of *coleoptera* by scientists, it was not until 35 years later that they were heard of as a mobilised army of invaders. Riley, an authority on entomology, says in their wild state they originally fed on the sand-burr, a species of wild potato having burrs. These were easily carried by animals in their furs further east, until 1859, thirty-five years after its discovery, the potato bug passed plains and prairies to the cultivated potato fields 100 miles west of the Missouri. With rich fields of food, instead of the straggling sand-burrs of its native home, the insect increased enormously—and this shows what good feed does towards propagation. From 1859 it rapidly spread towards the east, and after invading the several States to the west of this, by 1866 it occupied most of the land west of the line between Chicago and St. Louis. In 1874 they reached the Atlantic. In 1877 they were reported in New Brunswick, and only in 1880 were they found in Nova Scotia. However, from the Rocky Mountains to the Atlantic, the potato bug can boast of a victorous march against the combined forces of man, nature and fellow insects.

A Chatty Stock Letter from the States.

[From our Chicago Correspondent.]

It begins to look a little as if there might be a revival of old-time prices for Shorthorn cattle. For a few years past there has been no especial fuss made about this breed, and people who judge persons and things by the noise they create, rather than by the work they do, have come to think that the Shorthorns are declining in popular favor. The noble old breed, however, is so numerous and so well known that everybody is familiar with its good qualities, and there is no need of creating a fictitious newspaper boom for the breed.

The Shorthorn Breeders' Association is making preparations for a fine display of the breed, and a liberal offer of premiums, at the next Chicago Fat Stock Show.

On Thursday, May 16, there occurred at the stock yards, Chicago, a sale of Clydesdale horses, owned by McKay Bros., of Arlington Heights, Ill. Ten stallions and three mares was the number given in the catalogue as the horses that were to be offered for sale. The horses and mares were in good condition and appeared to be full of life. There were some superior animals in the lot. The sale began at one o'clock, and the prices bid were considered so low that after three mares and three stallions had been sold the sale was closed. Three stallions sold as follows: Young Wallace, seven years old, $1,500; Lothir, three years old, $2,000; Baldy, three years old, $850. Mares—Kate, five years old, $975; Darnall, five years old, $800; Darling and bay mare colt, $850. The market for this kind of stock does not appear to be very strong. There are not many buyers to pay the prices which importers call fair.

Geo. F. Morgan, a well-known champion and breeder of Hereford cattle, reached Chicago, May 19, with a large importation of fine cattle. In the lot were 170 bulls, cows and heifers, and 27 calves. With the exception of 8 or 10 Polled Angus, the cattle are all Herefords, and of excellent quality. The bull Rudolph, age 2 years and 8 months, is one of the finest I have ever seen. He is almost a perfect model. It is not generally known, but his cost price was $3,500. The cattle are just from quarantine at Baltimore. They will be pretty well scattered over the country when finally distributed among the respective owners. The bull Rudolph is owned jointly by Mr. Morgan and a stockman of Wyoming Territory.

Mr. W. H. Sotham has just returned from Canada, where he purchased for Geo. Hunton, Abliene, Kan., ten Hereford bulls, two heifers and one young calf. They are thorough-bred Herefords, descended from some of the best strains that are known. Mr. Sotham expects to sell four of the animals here; the others will be shipped to Mr. Hunton at Abilene as soon as they are rested.

Col. Robert Holloway, of Alexis, Ill., and the Glasgow Exporting Company, have made a peaceful settlement and played quits. It will be remembered that last November the latter attempted to forcibly take possession of a large lot of Clydesdale horses in the hands of the former, their agent, who was charged by them with trying to defraud them.

At Chicago, May 16th, Col. Muir sold for Mr. Stillwell, of Ohio, a herd of Holstein cattle. A large share of the animals sold were imported, and all were thoroughbred. The cattle were rather thin in flesh but were not in poor condition. The attendance of buyers was good, and it was the largest sale of Holstein cattle that has occurred in the West. There were 83 bulls, including several calves, sold at an average of $100, and about 65 cows and heifers, including some calves, sold at an average of $26 per head. A few of the choicest milkers sold at $300 to $500.

The indications are that an increasing interest is being taken in dairy stock. At the same time, however, the manufacture of imitation butter of fatty substances is on the increase also.

One of the queer things on the plains of Texas, where millions of cattle are growing, is the scarcity of beef, butter and milk. Last March I was one of a party which went to Mexico, and stopped in Texas to attend an annual stock raisers' meeting. We found but little milk and only scanty allowances of the palest grass butter, while the beef and mutton at the banquet were from the northern markets. They do but little feeding, and seldom milk the cows.

There has of late been a great deal said about the growing unpopularity of Devon cattle, but from various sources I find that these compact, small boned animals are held in high esteem by many cattle raisers of the plains, where there is ever a tendency in stock to develop large bone and scrawny frames. In this respect the Polled Angus and the Devons are both superior to the Shorthorns and Herefords.

Melons.

Mr. Gibb, of Abbotsford, P. Q., in his excellent pamphlet on Russian fruits, suggests that as the present varieties of melons are so difficult to grow in Canada, that we might successfully grow the Russian varieties. He says:

"Russia has long been celebrated for its melons. The best we saw belong to types we have not.

"MUSK MELON.—In the markets we used to find a melon about fourteen inches long, netted, the flesh very deep, and a creamy white in color, and of the highest quality. I call it a musk melon merely because I do not know what else to call it. Those who abstain from musk melons are not likely to object to these. Like the Khiva melons, which one of the Emperors of China always enquired about on the arrival of the caravans, this is a keeping melon, and may readily be kept till Christmas. It may be a little late in ripening. However, on September 2nd we found fine specimens in the Simbirsk market, said to be grown on the lower Volga, probably at Tsaritsim, Sarepta or Astrachan. In the Kursk and Voronesh markets we also find them sent from the south. These melons are grown in Russia, where the summer is longer than ours, yet not with such hotbed care as we can give them, and they seem to be picked early. They cannot, therefore, be so very late. Next autumn will test their value in this climate.

"WATER MELON.—Nearly every barge that is being towed up the Volga has somewhere a small deck load of water melons. In all the markets we find them in great quantity. They are a great staple article of food. They are all alike, round, about 10 inches in diameter, a creamy white in color, with red flesh, and of fine flavor. Those who have grown the Russian netted cucumber alongside of the finer English frame varieties, may have noticed the hardy, take-care-of-itself character of the Russian plant. Just such a hardy nature I expect to find in this Russian water melon. It grows without care in vast quantity, apparently as readily as pumpkins do with us, that is at Saratof and southwards. At Kursk and Voronesh it is not quite so large. It is a melon of fine quality, likely to do well in the hands of not very careful cultivators."

The next meeting of the American Pomological Society will be held in the city of Philadelphia, on the 12th, 13th and 14th September. All horticultural, pomological, agricultural and other kindred associations in the United States and British Provinces are invited to send delegations as large as they may deem expedient, and all persons interested in the cultivation of fruit are invited to be present and take seats in the convention. It is expected that there will be a full attendance of delegates from all quarters of our country, and that this will be the largest and most useful meeting ever held by the society.

The Dairy.

Excessive Butter Yields.

BY L. B. ARNOLD.

The strain after extraordinary butter yields is a little unhappy. It is exhausting to the vital force of the animals, and, like extraordinary yields in quantity, the product is vitiated in different ways. When the secretion of fat is unduly stimulated, the excited condition of the milk glands causes them to take into their products what, under a less excited state, they would leave out. Milk fats in a normal condition are made up, to a large extent, of oils and soft fats, giving to the butter a soft texture, low melting point and high flavor, the oils which contain the flavor being then in the largest proportion. As the milk glands become abnormally excited, they take in more of the harder fats—stearine and margarine, which are the chief components of tallow—and, as they do so, the butter grows stiffer, its melting point is raised and the flavor diminishes. By the time the mammary glands of a cow of ordinary size are stimulated to an activity that enables them to take in the material for making from five hundred to eight hundred pounds of butter in a year, they will have exhausted the resources of fat in her blood to an extent that includes so much of the hard fats which are accustomed to be deposited about the kidneys and in other parts of the body in the form of tallow, that her butter approximates, if it does not actually become, a naturally formed oleomargarine. I partook of some butter in Pennsylvania, a few years ago, the product of a Jersey cow giving some 16 pounds of butter a week, that had so much of the tallow element that it stood up as firmly as a cake of tallow when the mercury ranged among the nineties for three successive days, kept all the time in rooms above ground. There was no need of putting it in a cellar or refrigerator. Though it kept so nicely and was very high colored, it would hardly range above oleomargarine in flavor; yet the owner of the cow considered it fancy, but he was alone in his judgment.

Larger yields have turned out better butter, but extraordinary productions have so often approximated its characteristics as to be suggestive. Professor Henry E. Alvord, manager of the Hougton Farm, described to me the peculiarities of the butter of a Jersey prodigy in production, which were strikingly similar to the Pennsylvania sample. While the owner of the cow considered it splendid, the Professor, who is one of the best of experts, regarded it as unfit for the table. A tendency in other large yields toward the same peculiarities has attracted the attention of others, as the contributions to agricultural journals every now and then indicate. It is not a strange inference to make that excessive production should tend to lower the quality of butter, when the origin of its flavor is remembered. Butter has two sources of flavor. One comes from the volatile animal fats which originate in the body of the cow—butterine and its associates; and the other, and principal one, comes from the flavoring oils in the food, and, of course, cannot exceed the amount in the food consumed. If the amount which can be utilized is diluted by being diffused through five times as much butter in one case as in another, it must be apparent that the flavor of the larger quantity will be the lower. There is something a little peculiar about diluting flavoring oils with other fats. If a little tallow and essential oil are well rubbed together, the taste and smell of a limited quantity of oil may disappear by penetrating and hiding itself in the substance of the tallow. Possibly something of this may take place when the flavoring in the food of a cow is diluted by taking an unusual per cent. of tallow into the milk fats. However this may be, the dilution by an increase of fat secreted actually occurs. When a cow is fed a given measure of turnips daily, the intensity of the turnip flavor varies with the amount of milk and fat produced, becoming more intense as the milk diminishes, and less intense when it increases. But all the flavoring in the food does not go into the milk. A part of it is used up in supporting the warmth of the body, and a part of it mingles with the fat and flesh of the animal, so that only a part of it goes into the milk. Some animals use up more of it than others. It often happens that when a number of cows are fed the same quantity of turnips daily, and give about the same quantity of milk, the intensity of the turnip flavor will be greater in the milk of some cows than in that of others, because some of them use more of it than others before it gets into the milk. The Jerseys and the Channel Island cows generally are remarkable for the little use they make of the flavoring in their food for their bodily support. Nearly all of it is left to be mingled with their milk, and hence one of the causes for the phenomenal flavor of their butter; and yet it appears possible to push the secretion of insipid fats to such an extent as to dilute and hide this accustomed high flavor till it disappears or falls below the common level of the butter of inferior breeds, making too much of a good thing.

Co-operative Butter-Making.

BY JOHN GOULD.

Three years ago, it would have been regarded here in Ohio as *prima facie* evidence of lunacy for a man to have expressed the belief that co-operative creameries, or cream-gathered butter factories, would, or could have, any place in Ohio; but to-day scores of them are located all over the State, scores more are in contemplation, or actually building; and in the densest parts of the dairy district of the "Western Reserve," some of the largest creameries in the State are located, and one near me is making 700 lbs. of butter per day from exclusively gathered cream, and the opinion is now expressed that "they have come to stay," and the evidence to warrant such an assertion is best quoted that some of our largest and most successful cheese manufacturers are themselves going into the business.

If Canada is not already asking herself the question, she will soon, and a presentation of a few of the reasons why this system is so popular where it has been introduced may not be out of place, and its consideration in so widely a read journal as the ADVOCATE may call attention to this matter, and explain in a brief way why 2,000 of these creameries in the States are revolutionizing the art of butter-making.

In the start we state it as actually proven, that a uniformly high grade of butter can not be made in the thousand and one farm houses, taken as we find them. The few may; but the many do or will not, and thus we find the greater mass of the dairy butter actually competing with oleomargarine, and much of this actually gets left in the market struggle; while it has been found, and the high prices eight months in the year attest, that strictly first-class butter and oleo' never come in competition. It will take too long to educate the home butter-makers up to a high standard, and the step can better be taken by co-operation and the whole matter accomplished at once, and its advantages secured in a day. The idea of over production is absurd, as the quantity is not actually increased, but the quality, and it is the superior quality of an article that increases its consumption and enhances its value.

The question may be asked, "Why the butter of a creamery is so uniformly better than the home made?" And the answer to this covers the entire ground of the argument. We are not now speaking particularly of the combined butter and cheese factory system, but of a class of dairying that is not now reached by the other, who, per force, are required to make their butter at home. The butter and cheese factory has its "mission," and it is the wants of the consumer that must determine to what extent exclusive butter-making shall be carried.

By the co-operative system there is an uniformity of product secured at the start, for by this system certain conditions have to be complied with. A regularity of feeding and milking is first enjoined, and then the milk of the fifty or one hundred dairies is all set alike in one style of cream-raising cans, and to get best results, there must be a systematic application of temperature to get the largest amount of cream. This implies either ice or an abundance of cold water to force up the cream. So that four things, looking at uniformity, are secured at the start, which is very unlikely to be the case at a like number of farm houses. Were the milk to be sent to a milk factory, then quantity of milk is the farmer's object alone, no matter how obtained; but when cream is the object, and each dairy's performance is its own credit, and quantity of cream, instead of milk, is the test, the farmer becomes then interested; and as care and proper feeding is the only thing that will produce cream in abundance, and the greater the abundance of cream in the milk the more valuable it is for a fine butter product, the system carries its own lesson with it, and the shortest road to large results is by uniformity, strict compliance with the rules, and the production of the best cream possible. By this plan, a dairy will produce from one-third to a half more butter in a year than where the butter is made at home by the past conservative plan of care, feeding and manufacture, and when one realizes the creamery butter by its uniformity, and finding competition only with other butter of like class, the doubled price, added to the increased quantity, make a most favorable showing for the new system. Now this cream gathered every day, taken to a central station, thoroughly mixed and aired, or ripened to a one certain stage of mild acidity, not *soured*, churned in large quantities at a time, brine washed, worked and packed at a certain time, salted to the demands of the market to which it is to be consigned, packed, and put in cold storage, or sent immediately to market in refrigerator cars—must possess a higher value than the butter made at the 100 farm houses, with their 100 different ways and methods. The creamery butter has reached the market fresh—one grade, quality, texture and aroma; and the other may show extremely high grades, and others so inferior that to strike an average is to bring the price very low for the whole. Last winter, when the butter of a cream-gathered factory near me found quick sale at 43 cents, tons of dairy butter could be bought at 20 to 22 cents. The cost to make the low priced butter was actually more; for the labor of making the one was simply to strain the milk into the cans, the cream gatherer doing the skimming, and paying cash for the cream; while the other, selling for half the price, had cost all the labor that home butter-making implies, and was sold for store pay. The inch of cream, without labor, that could have been sold for 35 cents, after being converted into home-made butter, sold for 22 cents.

"Why not buy a private creamery of the cabinet pattern, and make this butter at home?" asks one. Alas! there are no Mother Shiptons in the dairy world to answer. If they all would, a most remarkable advance would soon be made in farm made butter; but, even should they, would the benefit be as great and as substantial progress made as by the co-operative plan that makes the one grade, and relieves the home of a large amount of drudgery at the best?

By this plan the dairies, large and small, by mountain and plain, in fertile valleys and on rugged hills, are made practically one, by massing the cream, and when the butter is made it is put into the market in "blocks" so large that it is quite an "object" for the great dealers to handle it; and knowing exactly what he has, the future amounts, and like matters, he sells his butter advantageously; and this in time becomes a substantial credit to the original producer.

There is yet another presentation of the subject, and that is the beneficial results conferred upon the home. The good wife, released from the half day's work of skimming milk, washing pans, churning and working over butter, now only has the care of the cans at most, and the time thus gained can be utilized in those little beautifications of person and home, which give cheerfulness and comfort to domestic life. Time for reading, amusement and kindred matters is thus gained, and that without neglect or curtailment of the income—which by the new plan is rather increased than diminished; and if this gained time is rightly employed, the farmer's home may be justly an abode of happiness, contentment and love unbounded.

Stock.

PRIZE ESSAY.

THE TREATMENT OF MILCH COWS.

By John McClure, Brampton, Ont.

In order to be successful with milch cows, it will be necessary that a person give the subject a good deal of attention. Some say, treat your cows as you do yourself. I say, study your cows, and let it be your aim to make them comfortable, because if you do not make them comfortable you need not expect the best results, no matter how well you feed them. In the treatment of cows, it is well to have method—set times and ways of doing things, but do not let cast-iron rules interfere with the comfort of your cows. For instance, when the time comes for turning out, if it storms bad, do not do it. Again, cows often come to the stable in the fall of the year with their stomachs uncomfortably filled with tops of some kind. I have actually seen men give them their usual feed in this conditien, thereby doing them injury from want of studying the comfort and need of their cows and for the sake of set rules. In order to make a cow comfortable in the stable, there are four things, apart from food, that in my experience are necessary—heat, pure air, light, and cleanliness; the last three mentioned can be had in almost any stable. In order to secure the first in cold weather you must have a good stable, but it is not my purpose here to describe stables; suffice to say that in a stable used for milch cows, by all means have a drop behind the cows so that they may be clean. All these four things being complete, you are in a fair way to make the keeping of cows profitable, provided that they are well fed, and that they are of the right breed to suit the requirements of the branch of dairying which you are engaged in. Now, I am no advocate of stuffing cows so as to injure them, but in order to make lots of butter, I find I have to feed more than I often see recommended in papers; two quarts bran, the same of shorts, with hay. The way I am feeding my cows at present is this: early morning, hay; after breakfast and milking, chaff and cut straw, mixed with an equal portion bran, chopped oats and barley meal; would prefer pea or corn meal to the barley. This mixture I dampen with water and mix well; after this, if the day is fine, they have the run of a straw yard till noon, then they are returned to stable, and get hay and carrots; at night the same mixture as after breakfast. On this treatment my cows are doing well. They have free access to salt, and my experience is that a cow will not take more salt than is good for her, provided she has free access to it every day in the year. I find a good rule to know whether your cows are right fed or not, as all cows do not require the same amount of food; as a general rule, if what passes from them is quite hard their food is not rich enough—if it becomes very soft they are getting too much of something; this is my experience. But in order to be successful, I must treat the subjects you mention.

1. *Treatment of Cows running repeatedly.* This, in my opinion, is a hard subject. There is a plan called cutting for the farley. At the entrance to the pelvis there is a lump of flesh as large as a grain of corn; cut this with a sharp knife and singe it with a hot iron. After this treatment mate her with the bull. I have known this to succeed, but not every time. A good plan is to mate them with the bull, put them in the stable, and then mate her again in from eight to twelve hours. I have known this to succeed. I have never known any benefit from changing bulls. My experience has been that if a bull is good for one cow he is good for another. Sometimes you cannot get them in calf, do what you will; but if you have a valuable cow do not be discouraged, as they will sometimes come in without any trouble after awhile. A good safe way is not to over-feed heifers and bring them in early, and to breed cows first time after calving.

2. *Before and after calving.* There will rarely be any trouble with the process of calving if the cow is in good condition. I think about this long before the cow's time comes for calving and keep her heart up, as it is folly to begin to fatten a cow a few weeks or days before she calves; on the contrary, I feed no grain of any kind for some time before calving to avoid any trouble with their udder, known as caked bag. I always turn the cow loose into a roomy box stall, dry and well littered. Some tie their cows up before calving to prevent their eating the cleaning, but I would much prefer them to eat their cleaning than to cruelly compel them to such an unnatural position while calving, and I think I might as well dispose of subject

3. *Eating cleaning.* Well, I never knew the eating of the cleaning to do a cow any harm. It seems natural to her to do it, and it seems natural to us to try to prevent her from doing it; and it can easily be prevented, if you know when the cow is going to calve, as if she has been rightly treated she will clean the first time she lies down after calving, when the cleaning can easily be taken away.

4. *That don't clean at once.* Now, I think all will admit that to know how to prevent a disease is better than to know how to cure it. Well, I can give a plan that will make a cow clean every time. At intervals of two or three days give the cow a pint of wheat about four times before she calves. I never knew this to fail for more than twenty years, but if a cow has been well fed she will require no treatment; she will clean as naturally as she calves. I had a cow that got hurt, lost her calf and held the cleaning. I gave her warm drink and boiled flax seed, but all of no use; the cleaning would not come. Twenty-four hours after calving I gave the following mixture: Epsom salts, 1 lb.; powdered ginger, 1 oz.; powdered fœnegreek, 1 oz.; carraway seed, ½ oz.; mixed and gave in three or four bottles warm water, sweetened with molasses. This mixture not having the desired effect in twelve hours, with the hand well greased, I caught hold of the after-birth and traced it down until I could go no further, and with the thumb and finger gently pressed the after-birth where it joins to a place called cotyledons; I may say that I was quite successful with this performance; I never saw it done. By using care any person can do it. If any person should feel timid about taking it quite away, loosen it as has been described. Afterwards give a little warm water, sweetened with molasses, with half an ounce of powdered ergot of rye, and in half an hour an additional half ounce. This will cause contraction of the womb and expulsion of the cleaning. When putrefaction of the after-birth or cleaning has taken place, which may be known by the black color, the womb should be well washed out with a weak solution of chloride of lime. Administer by the mouth one ounce twice a day of the sulphite of soda for a week, to neutralize any of the poison of putrefaction which may have been absorbed into the blood. Give the cow good and nutritious food to support her strength.

5. *Udder before and after calving.*—If the cow has been treated as I have described, there will be no difficulty with the udder either before or after calving. About two weeks before calving and one after will be about right to keep meal from them, in order to keep the udder all right. The ounce of prevention is better than the pound of cure. I think it is injudicious treatment of some sort that causes either milk fever or caked bag. Keep the cow quiet; treat her kindly; keep her from cold, and milk her out clean. If any hardness is felt in the udder, rub well with the hand. Goose grease and whiskey or brandy, or any heating liniment, is excellent; also allow the calf to suck.

6. *Calves if weaned.*—My plan is to wean the calves in all cases, except when I want to veal the calf. If I want a calf that I intend to raise to get new milk, I milk it and feed it to them, and thus save any trouble afterwards from cows sucking one another. I allow the calf to suck forty-eight hours and then take them off, and not, as some direct, take them away where they can neither hear nor see each other; but take them quite close to each other, so that they can both hear, see and smell. This, in my opinion, is the best plan, as the cow is kept quiet, which is important. We generally give the calf new milk about from one to two weeks, according to price of butter; then gradually wean them to skim milk, given perfectly sweet and warm. Make it warmer than milk drawn from the cow, as in cold weather it cools before the calf gets it. A little ground oil cake or flax seed, boiled to a jelly, may be given to take the place of the cream that has been taken off, if it agrees with the calf. Care should be taken not to give too much of either milk or flax, as thereby the calf is greatly injured. Give some fine hay or clover, and as the calf grows older, roots cut fine, and as it seems to agree with the calf, some meal may be added. Have something green convenient to their house that can be cut and carried to them. Do not turn out to pasture too soon; June is soon enough. A good plan is to have a pasture lot joining their house, contrary to the old proverb that "change of pasture is good for calves." I find it is very bad for them, as they fret for two or three days, sometimes even refuse to drink their milk. A good plan is to divide the pasture lot; first keep them in one side, then in the other; by this plan they have the benefit of change, and still come into their house to where they get their milk and cold water at noon all summer. Continue some meal every day all summer and all the next winter, with hay, cut oat sheaves and some roots, and if you have not tried this plan you will be surprised at the result. You will have calves that will be a pleasure for you to look at, and will be ready to milk any where from 20 to 30 months old, and which, if you want to sell, you need not go begging for a buyer. I have calves now one year old which I would not be ashamed to show to the best breeders in Canada.

Value of Ewe Lambs.

The tempting prices obtainable for really choice early lambs has yearly proved a greater temptation than many owners could resist, and the result has been that quite a number of ewe lambs are sacrificed at the shambles, to the serious detriment of flock-improvement, as well as ultimate loss to owners of the country. As in a majority of instances the sires of these lambs are better bred animals than are the dams, their preservation would prove a long stride in the direction of flock improvement, and if the owner feels compelled to restrict the number of animals handled, a rigid culling from the older ewes and filling their places from the choicest ewe lambs, should be a policy from which no temporary demand for "lamb and spring peas" tempts him to deviate. So long as the ewe lamb is a superior bred animal to its mother (and the breeder who does not have it so has mistaken his calling), it will prove the more profitable to retain in the flock. Not only does such retention insure the commingling of fresh and better blood, but it reduces the expense and dangers of management by the omission of animals which have passed their prime, and filling their places with those that in the nature of things will grow better instead of worse, for at least several succeeding years. Those who have not carefully compared results fail to appreciate how materially the loss from "natural causes" may be reduced by a careful observance of the policy of retaining—either for increase in numbers or maintaining any desired number—young and growing animals, and rigidly excluding such as have passed the meridian of life and vigorous improvement. The advantage in this respect alone is sufficient to offset any temporary top price for ewe lambs, and when to it is added the tide of improved blood that comes on through young animals, every prudent flock-manager will find warrant for steeling his face against the most tempting offers for young females.

Parsnips for Cows.

Those farmers who have not yet adopted the ensilage system of preserving green food for winter use, and who use roots instead, should bear in mind the claims of parsnips as a cattle feed. It is one of the most nutritious of roots, and can be grown without more trouble than carrots. We have never had milch cows increase in milk or butter productions much faster upon any extra feed than when a peck of parsnips was added daily to their rations of hay and grain. Parsnips may be sown any time in June, if the ground is fitted, as it always should be for root crops, by being deeply plowed, well manured and finely pulverized. They should be sown in drills about fourteen to eighteen inches apart, and the seed covered about half an inch deep. When two or three inches high thin to six inches apart and keep well hoed. Do not harvest in the fall, but allow them to remain in the ground until spring, and when the beets, mangels, turnips, small potatoes and the like are all consumed, and the "spring appetite" of the animal begins to crave the green grass which has not started, then dig your parsnips and feed them out. One great advantage of the parsnip is that it will winter perfectly well in the ground, and will be in its best condition at a season of the year when the animal most needs roots, and when other varieties have either decayed or lost much of their value as feed, if indeed you have been able to keep them at all.

It is a matter of economy to give early clipped sheep some protection against late wintry blasts such as are experienced about this season of the year.

The Farm.

The Turnip Fly.

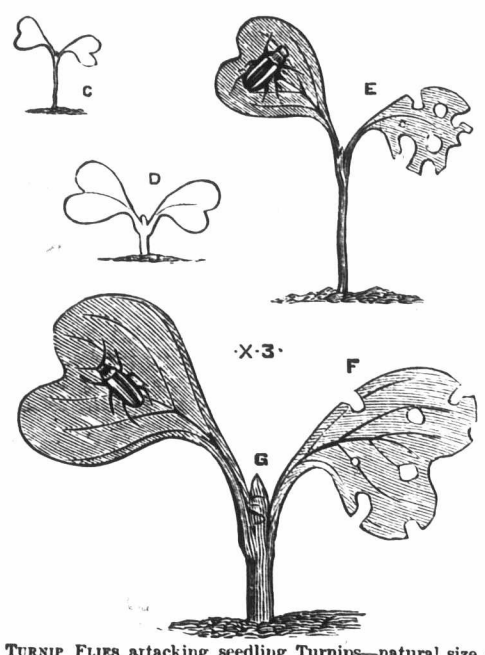
BY WEBB AND SONS, WORDSLEY, ENGLAND.

There are very few insects which attack our farm crops with effects more disastrous than the turnip fly. The insect is not a fly in the true sense of the term; it belongs to the beetle family, and is really a minute beetle with comparatively large transparent wings. As it is seen flitting about over young turnip plants, it appears with its large wings and small body to the naked eye very much like a small fly From its size and general appearance when its wings are closed, it is in some places termed the Turnip Flea, or Flea Beetle. It is known to men of science as *Phyllotreta nemorum*, or at times *Haltica nemorum*. There is more than one sort of turnip fly, just as there are different sorts of turnips; but in regard to the flies, they appear all the same to the naked eye, and alike in their general habits. In its manner of flying it resembles the cockchafer, and other members of the beetle family familiar to every agriculturist.

The flies live through the winter generally in a semi-torpid state slightly beneath the surface soil of fields, under stones, within the hollow stems of old straw and partly decayed herbaceous plants, in heaps of dry field rubbish, and in any place that is likely to afford some protection against the cold and wet of winter.

With the first sunshine of early spring these little flies emerge from their hiding-places, and run over the surface of the ground as illustrated natural size at A. Being so small, they are virtually invisible to the naked eye, but when they spread their transparent wings and flutter in the light, especially when they are present in large numbers, they become as visible as the ordinary green fly, but not so clearly seen as gnats.

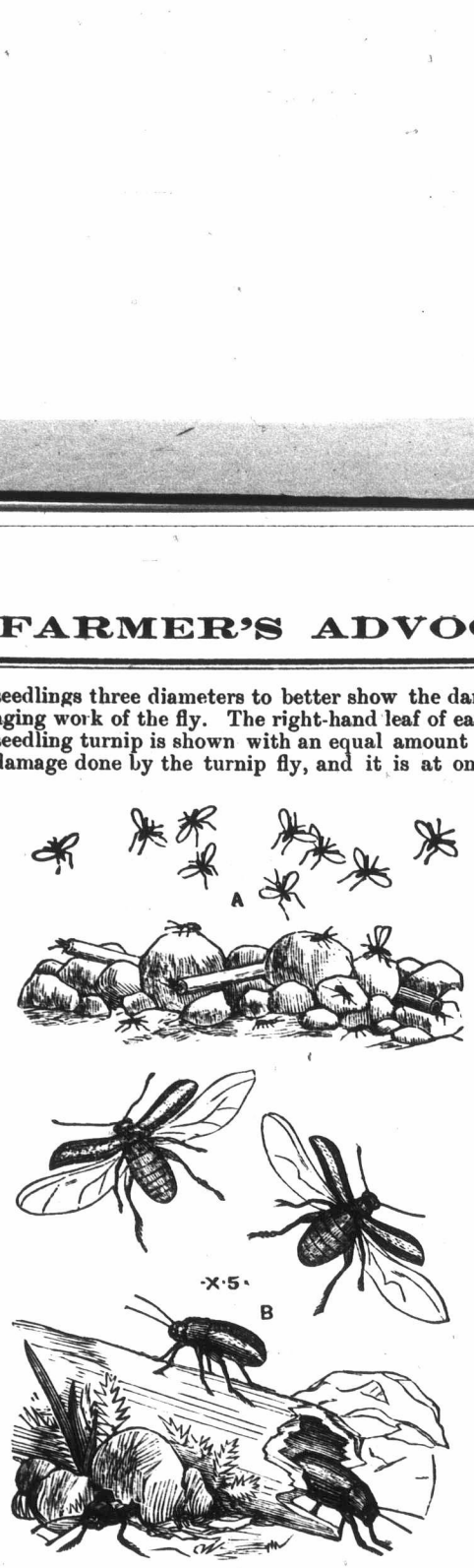
If some of the specimens are secured and magnified with a lens about five diameters, they will be



TURNIP FLIES attacking seedling Turnips—natural size at C. D; enlarged 3 diameters at E, a weak seedling from bad seed, and F, a strong seedling from good seed.

more clearly seen, like our illustration at B, where one fly is emerging from a broken straw (of course magnified five times), another example is walking on the top of the fragment of straw, a third is creeping from under a little particle of earth, whilst two others have spread their gauzy wings, and are flying in the air. The colour of the fly's body is black, with two stripes of yellow from snout to tail.

The beetle commonly attacks the turnip plants as soon as the two first smooth green seed-leaves show themselves above the ground. As the function of these two leaves is to assimilate food for the plant, it follows as a consequence that if they are eaten off, or get seriously damaged, the young turnip plant must perish. That they do very often get eaten off, and the entire first sowing of seed is entirely lost, is clear; we have illustrated two turnip seedlings at C and D, natural size, to show the difference in the size of the seed-leaves; C is from common and inferior seed, D is from good seed; now if an equally bad attack is made upon these two seedlings by the fly, C will perish, whilst D will survive. At E and F we have enlarged both seedlings three diameters to better show the damaging work of the fly. The right-hand leaf of each seedling turnip is shown with an equal amount of damage done by the turnip fly, and it is at once



TURNIP FLY.—Natural size at top, magnified 5 diameters below.

manifest to the eye that whilst the weak and drawn-up seedling at E, raised from poor seed, is very seriously, and perhaps fatally, damaged, the much more sturdy seedling raised from the best selected seed is not likely to be materially affected by the attack.

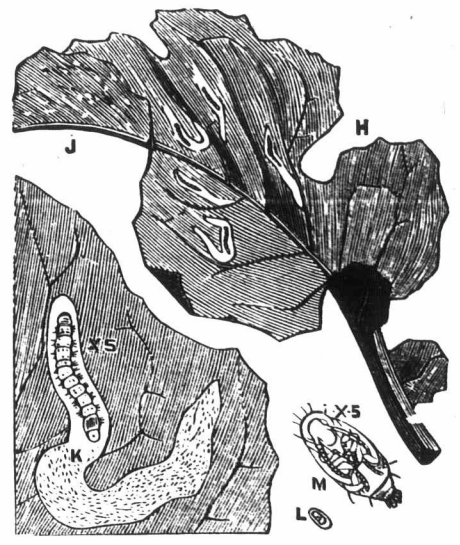
It must be remembered that the chief injury is done to the turnip plant in its infant seed-leaf state, therefore every effort should be made by the best cultivation to hurry the seedlings on to produce a few of the ordinary rough leaves, such as are seen just emerging from between the seed-leaves at G. When a few of these rough ordinary leaves are produced, the young turnip plants are almost proof against attacks of the fly; at any rate, they can withstand or throw off attacks with ease.

We must now describe another phase in the attack of turnip flies upon turnips. In April the flies begin to lay eggs, and when a turnip field is selected for this act, the eggs are laid on the undersides of the rough turnip leaves, the seed-leaves having by this time all decayed. The eggs are not much larger than an ordinary pin's head, and being laid on the under side of the leaves, they are virtually invisible. Being underneath, they are protected from the heat of the sun and from storms of rain; the eggs are soon hatched, and do not give rise to a fly but to a very small grub; as soon as hatched the grub eats its way into the substance of the leaf, and lives between the upper and lower skin, feeding on the green vital material within the leaf. The grubs continue eating the inner substance of the leaf for about six days, when they drop out of the leaf on to the ground close to the turnip plant, and bury themselves an inch or two beneath the surface. In this position each grub changes to a chrysalis, and in about a fortnight a perfect turnip fly emerges from each chrysalis. The first new brood of flies generally appears in May or June, and as less than a month is sufficient for eggs to be laid, the grubs to be hatched and fed, the chrysalis condition reached, and another brood of flies hatched, it follows that there are generally five or six broods of turnip flies produced every season, and always of course with their attendant grubs. From the above remarks it will be seen what enormous power of increase the turnip fly possesses in being capable of producing five or six generations in one season.

At H, we have illustrated a small ordinary rough turnip leaf the size of nature; at J is shown the end of the leaf turned up to exhibit the fly's eggs deposited on the under side: on the upper side may be seen five grubs within the two skins of the leaf, and eating away the inner substance. Wherever the grubs have eaten away this material a small white wavy streak is left quite visible to the naked eye. To make the appearance of the grub more distinct we have enlarged it five diameters at K (to the same size as the flies at B): it is again shown within the material of the leaf living in the tunnel it has made between the skins. The chrysalis is seen natural size and enlarged five diameters at L and M. We need hardly say that all our illustrations have been taken from nature, and our notes made from practical experience. The seedling turnips at D and F are actual examples of Webbs' Purple Top Mammoth.

In considering the nature of the means to be taken to avoid attacks of the turnip fly, it must be remembered that wet weather is very distasteful to the insect, as it can neither leap nor open out its fine gauzy wings in rainy weather; this wet weather, on the other hand, is the very condition young turnips most require. Hot, dry, sunshiny weather, is most suitable to the fly, and on the other hand it is equally unsuitable to the turnip. It follows, therefore, if the turnips can be hurried on in wet weather well through the seed-leaf stage, they will grow at their best whilst the fly is at its worst. It is in the highest degree desirable that the surface of the ground on which turnips are to be sown should be fine and even, without, if possible, even moderate-sized clods; for if the surface is not finely prepared the young seedlings cannot effectually pierce it with their roots, and if the seedlings are in any difficulty (however slight) it invariably proves advantageous to the turnip fly. As the turnip fly can only live on the turnip or some of its allies (chiefly charlock), it is manifestly advisable to remove as far as possible all weeds of the turnip and cabbage class seen on ill-kept farms and in hedge sides.

We confess that we cannot advise the steeping of seeds in turpentine, kerosene, paraffin, carbolic acid, petroleum, &c. These materials, if properly diluted with water, are no doubt distasteful to the fly and do not injure the seeds, as the outer skin of every seed is already a dead substance, the vital



TURNIP FLY.—The grub of the fly, natural size and magnified, feeding between the upper and lower skins of the turnip leaf. Chrysalis at bottom, natural size and magnified.

material being within. Now the turnip fly does not want the dead outer husk of the turnip seed, but the living juicy green seed leaves from within as they are spread out in the sun; these leaves are not likely to be largely tainted by paraffin, and upon these leaves the flies rest or leap from one to the other.

The summary of our advice is—1st, keep the fields as clear from weeds and rubbish as possible; 2nd, prepare the ground with a fine, even surface; 3rd, sow the best selected seeds; 4th, sow thickly; 5th, sow during weather which is likely to continue wet for a short time; 6th, manure discreetly, for too much manure is as bad as too little; 7th, when convenient, prefer artificial to farmyard manure.

Professor E. M. Shelton's experiment at the Kansas Agricultural College Farm to test the value of comfort to fattening stock, reports that during one week recently the five pigs exposed to the weather made, getting all the corn they would eat, a total increase of only 16 lb.; while the same number, originally of equal size, kept in warm pens, consumed a little more feed, and gained 41 lb.

Entomology.

Insects Injurious to Fruits.

One of the most valuable of recent publications is that upon "Insects Injurious to Fruits," by W. Saunders, F. R. S. C., of London, Ont., and published by J. B. Lippincott & Co., Philadelphia, U. S., and London, Eng. The work has been most carefully compiled, and treats in a most exhaustive manner upon insects injurious to the roots of the trees, then on those attacking the trunk, next those which injure the branches, then insects which damage the leaves, and also those which attack the fruit. The book is profusely illustrated, containing no less than 440 wood cuts of insects which injure the fruit crop not only of Canada, but also the Southern and Northern States, and will prove invaluable to fruit growers in all parts of the continent. As Canadians we feel proud of the author.

THE GRAPE-VINE PHYLLOXERA.

The following we extract from Mr. W. Saunders' new Entomological work :

"This tiny foe to the grape-vine has attained great celebrity during the past few years, and much attention has been paid to the study of its life-history and habits, in the hope of devising some practical measures for its extermination. The destruction it has occasioned in France has been so great that it has become a national calamity, which the government has appointed special agents to inquire into ; large sums of money have also been offered as prizes to be given to any one who shall discover an efficient remedy for this insect pest. At the same time it has made alarming progress in Portugal, also in Switzerland and in some parts of Germany, and among vines under glass in England. It is a native of America, whence it has doubtless been carried to France ; it is common throughout the greater portion of the United States and in one of its forms in Canada ; but our native grape-vines seem to endure the attacks of the insect much better than do those of Europe. Recently it has appeared on the Pacific slope, in the fertile vineyards of California, where the European varieties are largely cultivated, and hence its introduction there will probably prove disastrous to grape-culture.

This insect is found in two different forms : in one instance on the leaf, where it produces greenish-red or yellow galls of various shapes and sizes, and is known as the type *Gallæcola*, or gall-inhabiting ; in the other and more destructive form, on the root, known as the type *Radicicola*, or root-inhabiting, causing at first swellings on the young rootlets, followed by decay, which gradually extends to the larger roots as the insects congregate upon them. These two forms will for convenience be treated together, a slight departure from the general plan of this work.

The first reference made to the gall-producing form was by Dr. Fitch in 1854, in the "Transactions of the New York State Agricultural Society," where he described it under the name of *Pemphigus vitiæfolia*. Early in June there appear upon the vine leaves small globular or cup-shaped galls of varying sizes. A section of one of these is shown at *d*, Fig. 3 ; they are of a greenish-red or yellow color, with their outer surface somewhat uneven and woolly. Fig. 1 represents a leaf badly infested with these galls. On opening one of the freshly-formed galls, it will be found to contain from one to four orange-colored lice, many very minute, shining, oval, whitish eggs, and usually a considerable number of young lice, not much larger than the eggs, and of the same color. Soon the gall becomes over-populated, and the surplus lice wander off through its partly-opened mouth on the upper side of the leaf, and establish themselves either on the same leaf or on adjoining young

Fig. 1.

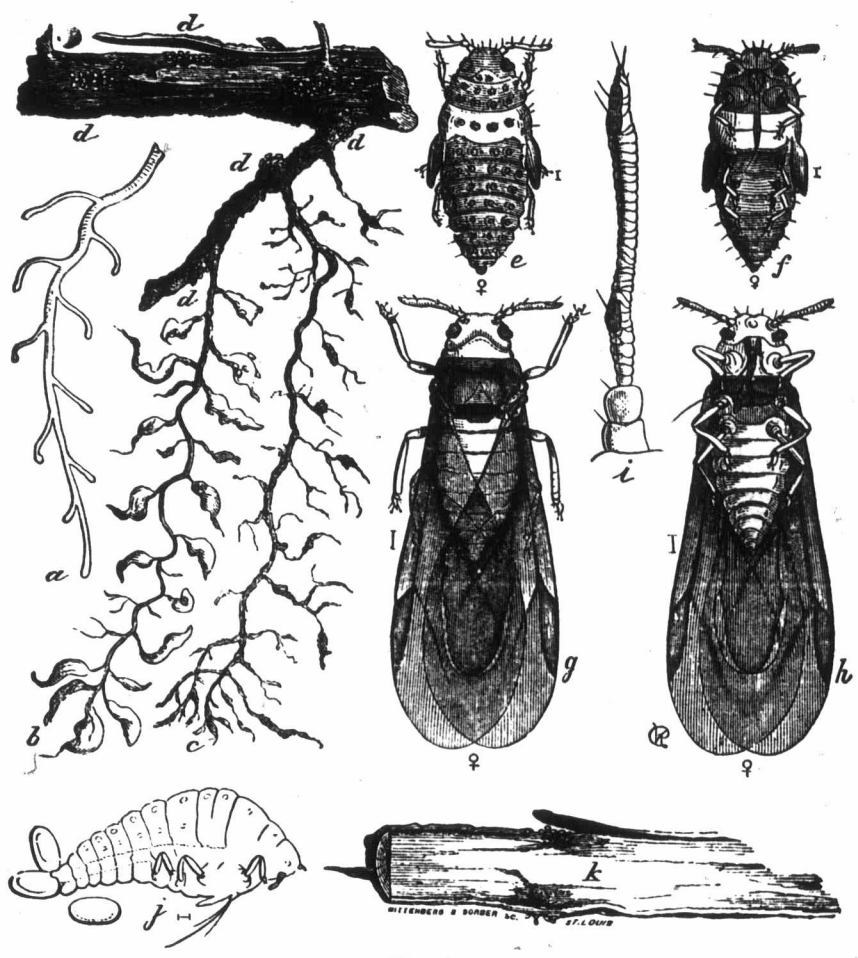


Fig. 2.

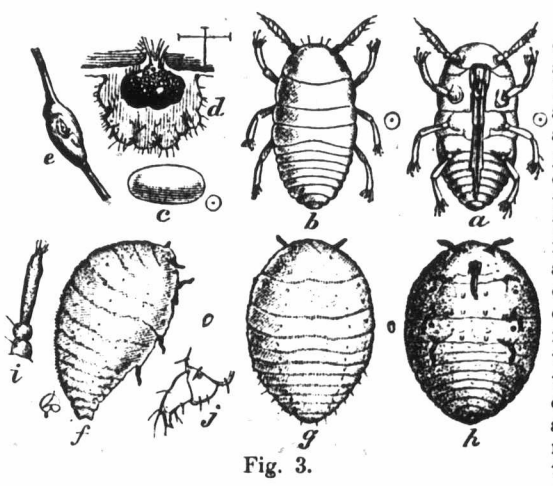


Fig. 3.

leaves, where the irritation occasioned by their punctures causes the formation of new galls, within which the lice remain. After a time the older lice die, and the galls which they have inhabited open out and gradually become flattened and almost obliterated ; hence it may happen that the galls on the older leaves on a vine will be empty, while those on the younger ones are swarming with occupants.

These galls are very common on the Clinton grape and other varieties of the same type, and are also found to a greater or less extent on most other cultivated sorts. They sometimes occur in such abundance as to cause the leaves to turn brown and drop to the ground ; and instances are recorded where vines have been defoliated from this cause. The number of eggs in a single gall will vary from fifty to four or five hundred, according to its size. There are several generations of the lice during the season, and they continue to extend the sphere of their operations throughout the greater part of the summer. Late in the season, as the leaves become less succulent, the lice seek other quarters, and many of them find their way to the roots of the vines and establish themselves on the smaller rootlets. By the end of September the galls are usually deserted. In Fig. 3 we have this type of the insect illustrated : *a* shows a front view of the young louse, and *b* a back view of the same, *c* the egg, *d* a section of one of the galls, *e* a swollen tendril, *f*, *g*, *h*, mature egg bearing gall-lice, lateral, dorsal and ventral views, *i* antennæ, and *j* the two-jointed tarsus.

When on the roots, the lice subsist also by suction, and their punctures result in abnormal swellings on the young rootlets, as shown at *a* in Fig. 4, page 174. These eventually decay, and this decay is not confined to the swollen portions, but involves the adjacent tissue, and thus the insects are induced to betake themselves to fresh portions of the living roots, until at last the larger ones become involved, and they, too, literally waste away.

In Fig. 4, page 174, we have the root-inhabiting type, *Radicicola*, illustrated : *a*, roots of Clinton vine, showing swellings ; *b*, young louse, as it appears when hibernating ; *c*, *d*, antennæ and leg of same ; *e*, *f*, *g*, represent the more mature lice. It is also further illustrated in Fig. 2, where *a* shows a healthy root, *b* one on which the lice are working, *c* a root which is decaying and has been deserted by them ; *d*, *d*, *d*, indicate how the lice are found on the larger roots ; *e* represents the female pupa, seen from above, *f* the same from below, *g* winged female, dorsal view, *h* the same, ventral view, *i* the antennæ of the winged insect, and *j* the wingless female, laying eggs, on the roots ; *k* indicates how the punctures of the lice cause the larger roots to rot. Most of these figures are highly magnified, the short lines or dots at the side showing the natural size.

During the first year of the insect's presence the outward manifestations of the disease are very slight, although the fibrous roots may at this time be covered with the little swellings ; but, if the attack is severe, the second year the leaves assume a sickly yellowish cast, and the usual vigorous yearly growth of cane is much reduced. In course of time the vine usually dies ; but, before this takes place, the lice, having little or no healthy tissue to work on, leave the dying vine and seek for food elsewhere, either wandering under ground among the interlacing roots of adjacent vines, or crawling over the surface of the ground in search of more congenial quarters. During the winter many of them remain torpid, and at that season they assume a dull-brownish color, so like that of the roots to which they are attached that they are difficult to discover They have then the appearance shown at *b* in Fig. 4, page 174. With the renewal of growth in the spring, the young lice cast their coats, rapidly increase in size, and appear as shown at *e*, *f*, *g*, in the figure ; soon they begin to deposit eggs ; these eggs hatch, and the young ones shortly become egg-laying mothers like the first, and, like them, also remain wingless. After several generations of these egg-bearing lice have

been produced, a number of individuals about the middle of summer acquire wings. These also are all females, and they issue from the ground, and, rising in the air, fly, or are carried with the wind, to neighboring vineyards, where they deposit eggs on the under side of the leaves among their downy hairs, beneath the loosened bark of the branches and trunk, or in crevices of the ground about the base of the vine. Occasionally individual root-lice abandon their underground habits and form galls on the leaves.

The complete life-history of this insect is extremely interesting and curious, and those desiring

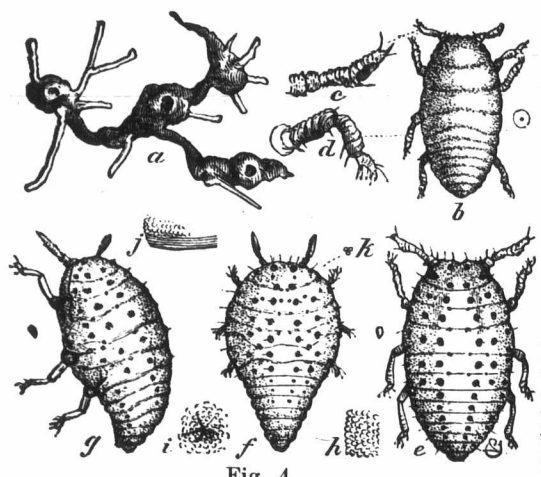


Fig. 4.

further information as to the different modifications of form assumed by the insect in the course of its development, will find it given with much minuteness of detail in the fifth, sixth, seventh and eighth "Reports on the Insects of Missouri," by C. V. Riley.

Remedies.—This is an extremely difficult insect to subdue, and various means for the purpose have been suggested, none of which appear to be entirely satisfactory. Flooding ths vineyards, where practicable, seems to be more successful than any other measure, but the submergence must be total and prolonged to the extent of from twenty-five to thirty days; it should be undertaken in September or October, when it is said that the root lice will be drowned and the vines come out uninjured.

Bisulphide of carbon is stated by some to be an efficient remedy; it is introduced into the soil by means of an auger with a hollow shank, into which the liquid is poured; several holes are made about each vine, and two or three ounces are poured into each hole. Being extremely offensive in odor and very volatile, its vapor permeates the soil in every direction, and is said to kill the lice without injuring the vines. This substance should be handled with caution, as its vapor is very inflammable and explosive. Alkaline sulpho-carbonates are also recommended; these are gradually decomposed in the soil and give off sulphuretted hydrogen and bisulphide of carbon. Carbolic acid mixed with water, in the proportion of one part of the acid to fifty or one hundred parts of water, has

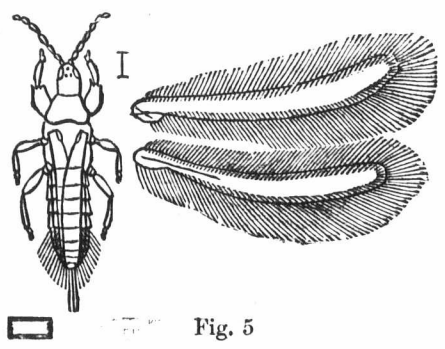


Fig. 5

also been used with advantage, poured into two or three holes made around the base of each vine with an iron bar to the depth of a foot or more. Soot is also recommended to be strewed around the vines.

It is stated that the insect is less injurious to vines grown on sandy soil, also to those grown on lands impregnated with salt.

Since large numbers of these insects, both winged and wingless, are known to crawl over the surface of the ground in August and September, it has been suggested to sprinkle the ground about the vines at this period with quicklime, ashes, sulphur, salt, or other substances destructive to insect life. The application of fertilizers rich in potash and ammonia, such as ashes mixed with stable-manure or sal ammoniac, has been found useful. A simple remedy for the gall-inhabiting type is to pluck the leaves as soon as the galls appear and destroy them.

Several species of predaceous insects prey on this louse. A black species of Thrips with white-fringed wings (*Thrips phylloxeræ* Riley, see Fig. 5) deposits its eggs within the gall, which when hatched produced larvæ of a blood-red color, which play sad havoc among the lice. The larva of a Syrphus fly, *Pipiza radicum*, which feeds on the root-louse of the apple, has also been found attacking the Phylloxera. Another useful friend is a small mite (*Tyroglyphus phylloxeræ* P. & R., see Fig. 6), which devour the lice; and associated with this is sometimes found another species (*Hoplophora arctata*, Riley) of a very curious form, reminding one of a mussel. Fig. 7 represents this insect in different attitudes, highly magnified.

The gall-inhabiting type is very subject to the attacks of a small two-winged fly, *Diplossis grassator* Fyles, which deposits its eggs either in the gall or at its entrance, from which the larva is soon produced. This, although destitute of legs, is very active, and, groping about in the interior of the gall, seizes on the young lice soon after they are hatched and sucks them dry. It does not appear at first to attack the parent lice; the tender progeny are more to its liking, and these are produced in sufficient numbers to furnish it with a constant supply of fresh food. In some instances one larva, in others two are found in a single gall, and as they increase in size they devour the lice very rapidly, and before changing to the chrysalis state clear the gall entirely of its contents. The larva (Fig. 8, *a*) is about one-tenth of an inch long, of a pale pinkish-yellow color, glossy and semi-transparent, with a dark line down the back on the two anterior and some of the posterior segments. On the terminal segment there are two short, fleshy horns united

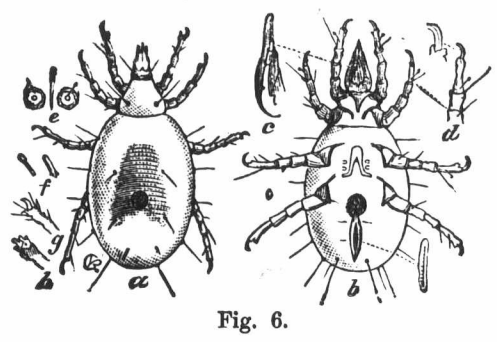


Fig. 6.

by a slight ridge; the horns are tipped with brownish black, and have a minute cluster of spines at their summit.

The chrysalis, shown at *b* in the figure, is a little less than one-tenth of an inch in length, of a reddish-brown color, with a few short hairs scattered over its surface, and two blackish horns united by a ridge near the hinder extremity. Both the chrysalis and the larva are magnified.

The perfect insect escapes in about a fortnight after the chrysalis is formed. It is a very pretty little two-winged fly, shown much magnified at *c* in the figure, and of its natural size at *d*.

The Phylloxera is also preyed on by the larva of a dull-colored lady-bird, a species of Scymnus, by several other species of the lady-bird family, and by the larvæ of the lace-wing flies.

To guard against its introduction into new vineyards, the roots of young vines should be carefully examined before being planted, and if knots and lice are found upon them these latter may be destroyed by immersing the roots in hot soap-suds or tobacco-water.

Our native American vines are found to withstand the attacks of this insect much better than do those of European origin; hence by grafting the more susceptible varieties on these hardier sorts, the ill effects produced by the lice may in some measure be counteracted. The roots recommended to be used as stocks are those of Concord, Clinton, Herbemont, Cunningham, Norton's Virginia, Rentz, Cynthiana and Taylor. The Clinton, one of the varieties recommended, is particularly liable to attacks of gall-producing type of Phylloxera, but the lice are seldom found to any great extent on its roots, and the vine is so vigorous a grower that a slight attack would not produce any perceptible injury.

Summer Flowering Bulbs.

The Gladiolus has become one of the most popular of summer flowers. It has many commendable qualities, and requires but little of what may be called skill in its management. The bulbs may be planted as soon as the frost leaves the ground in spring, and if a succession of flowers is desired, planting may be made weekly until the middle or end of June. The bulbs for late planting must be kept in a very cool cellar to prevent them from growing prematurely. Like most other bulbs, Gladiolus thrive best in sandy, or at least light soil, and if the finest flowers are to be obtained, the soil must be well enriched. In dry seasons the blooms will be short lived, but this can be materially counteracted by mulching around the stems. This is preferable to watering, which sometimes

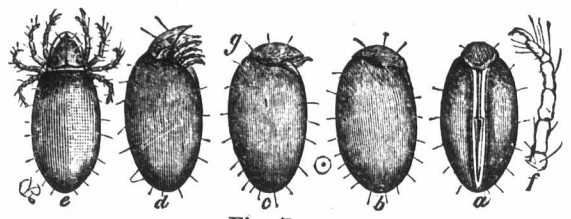


Fig. 7.

injures the bulbs. They ripen seed very freely, but it is at the expense of the young bulbs, and where it is not proposed to save seed, the future flowering bulbs will be greatly helped in growth by removing the flower stem as soon as the flowers fade. Each bulb will form two bulbs for future planting, and in addition to these, numerous small bulblets will be found clustering at the base of the larger bulbs. These small bulbs will vary in size from a marble to a pea. These should be carefully gathered and sown in rows like peas, when they will soon reach the size of flowering bulbs. The bulbs should be lifted in the fall, and after being well dried in the sun, stored in a dry place where no frost can enter. In dry soils even in the middle States they can be planted deep enough to escape injury from freezing, but it is the safer plan to lift the bulbs after the stems decay, and keep them dry during winter.

The *Trigridia*, or Tiger flower, is a Mexican bulb which produces tulip-shaped flowers of a scarlet color, spotted with yellow. The flowers are very beautiful, but of short duration, lasting only one day; but it continues flowering some time, several flowers being produced from the same stalk. The bulbs are small and appear almost worthless, but if they are planted in a deep, light, rich soil, they will flower satisfactorily. They are very tender, and will not stand any frost, consequently they should be lifted and kept in a dry place where there is no frost. They should not be planted until the ground becoms warmed in spring, otherwise the bulbs will be apt to decay.
—*National Tribune.*

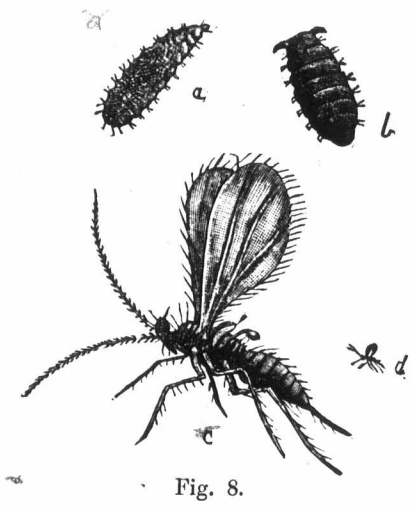


Fig. 8.

The green covering or so-called moss which accumulates on plant pots is always injurious to the plant. "A bright pot makes a healthy plant," is the gardener's rule. This green covering is an alga, a plant closely related to the sea-weeds. It acts in much the same way as glazing would act in stopping the pores of the pot and allowing no circulation of air. It should be scrubbed off as often as it appears with sand and water.

Garden and Orchard.

Summer Flowers.

Those who have a sheltered border of free, fertile soil, may raise plants of the best quality by sowing during the present month. By that time the soil has become sufficiently warm to ensure the germination of the seed, provided it is not placed in the ground when the earth is in a wet, pasty condition. The surface having been made quite fine, draw drills four or five inches apart with the finger, and in these scatter the seeds thinly—that is, they should not quite touch each other, and cover less than a quarter of an inch deep with the finest soil at command. There let the plants grow until they touch each other across the spaces between the drills, when they must at once be transplanted on dull, damp days, if possible.

If a rich bed of double stocks is wanted, the plants should be inserted five or six inches apart, or even a little closer if the seedlings are plentiful. In the course of a week or two the plants will show a truss of flowers in the point, and before these expand the singles can be easily distinguished by their long, thin buds; those of the double flowers being round, with very short stems. The plants producing flowers should be drawn out and thrown away, and the doubles will branch and soon fill the vacant spaces. Some persons imagine that stock seed can be had that has been saved from double flowers, and hence expect that all succeeding flowers will be double also. This is not so. No really double flower can produce seed, for the sufficient reason that the organs of fructification are transformed into petals. All stock seed is saved from single flowers, but by selection, good culture, and ripening under favorable conditions, a very large percentage of the plants produce flowers of the desired kind.

Aster seed may be sown precisely in the same manner and at the same time as the preceding. There are no more massive and beautiful late summer and autumn flowers than asters, but to have them of the first order of merit the plants must be grown in rich soil; if as rich as that prepared for celery all the better. There are many kinds of asters named in catalogues; it becomes necessary, therefore, to point out a few of the most distinct. If we were limited to one kind we should grow the Victoria. The plants grow a little more than a foot high, and produce beautiful imbricated flowers in a great variety of color. As a second type we should choose the Dwarf Chrysanthemum flowered, or Bouquet Aster. It flowers a little later than the other, the plants being about eight inches high, and densely covered with flowers, so as to resemble a bouquet. Totally distinct from the above, and admired by many, is the German Quilled Aster, which has small, globular flowers composed of an infinite number of fluted or quilled florets, the others having flat petals, as also has the largest of all asters, the Emperor, the flowers of which are of great size, but less symmetrical than those of the Victoria. These four kinds will suffice for most gardens, and any of them, if well grown, will give satisfaction.

Zinnias are beautiful summer flowers, unsurpassed for richness of color. There are double and single varieties each in many hues, but the latter are generally the most satisfactory. They are rather more tender than stocks and asters, and if the seed can be sown in boxes, and covered with squares of glass, or under a handlight, it will germinate the more freely, though we have raised hundreds of plants without such protection. Zinnias grow about two feet high; they like rich soil and a warm, sunny position.

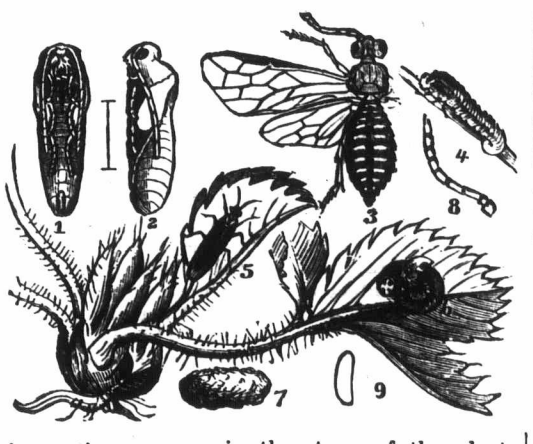
Everlastings are largely grown, and deservedly so, for they are attractive in the garden, and the flowers are particularly welcome for room decoration in the winter. By far the most useful of this class of flowers are the Helecrysums. They are readily raised from seed in the manner described for stocks, and they grow freely in any fertile soil, attaining a height of two feet or more. For drying, they should be cut as soon as expanded, and suspended in a dry room. For mixing with everlastings, ornamental grasses should be grown, the best thing, perhaps, *Briza maxima* (the large quaking grass) and *Laquerus oratus* (the hare's tail grass). Sow the seeds now in the open border, covering them lightly, and immediately the young plants can be handled thin them out to an inch or two apart, as it is impossible that good plumes can be had if the plants are overcrowded.

All kinds of hardy annuals may be sown, and the sooner the better, not forgetting mignonette and sweet peas, nor, for perfuming the garden at night, and night only, the Night-scented Stock (*Matthicola becornis*). Also those beautiful climbers, the Morning Glory (*Convolvulus major*), and the Canary Creeper (*Tropacolum peregrinum*) may be sown now in the open air for covering poles, porches, walls and fences.

Strawberry Worms.

The strawberry false worm (*Emphytus maculatus*, Norton) is a soft, dirty yellow, 22-footed worm, that feeds externally on the leaf of the strawberry, and is illustrated in all its stages in the accompanying figure.

The parent flies may be seen hanging to and flying around strawberry vines during the present month. They are dull and inactive in the cool of the morning and evening, and at these hours are seldom noticed. They are of a pitchy black color, with two rows of large transverse, dull, whitish spots upon the abdomen. The female, with the saw-like instrument peculiar to the insects of the great family (*Tenthridinidæ*) to which she belongs, deposits her eggs, by a most curious and



interesting process, in the stems of the plant, clinging the while to the hairy substance with which these stems are covered. The eggs are white, opaque, and .003 of an inch long, and may be readily perceived upon splitting the stalk, though the outside orifice at which they were introduced is scarcely visible. They soon increase somewhat in bulk, causing a swelling of the stalk, and hatch in two weeks, more or less, according to the temperature; and from the middle of May to the beginning of June the worms attract attention by the innumerable small holes which they make in the leaves. After changing their skins four times the worms become full grown, when they measure about three-quarters of an inch.

Enemies of the Squash.

The New York *Times* says: "The enemies of the squash are numerous. It is too often supposed that the 'squash-bug,' as it is called, does all the mischief inflicted upon this plant. But there are at least four different insects—one bug, two beetles, and a moth—which prey upon the vine. There are some mistakes, too, in regard to the habits of these insects, which are based upon very incomplete observations. The writer has grown squashes for several years past with a view to investigating the habits of these pests. The worst of all is the vine-borer, which lays its eggs upon the vines near the joints, and not only near the roots, as stated in some works on entomology; the larva bores into the vine and eats out the heart, which causes the leaves to droop and die. The moth is related to the currant borer, the peach borer, and other borers. It is orange and black in color, and goes to work in the afternoon near sundown. To prevent damage from this pest the soil should be richly manured, the vines covered with soil at every joint where new roots will form, and may also be brushed over with a paste of cow dung. When the worms are in the stems, their whereabouts may be found by a scar at the place of entrance. If the vine is carefully slit with a pen-knife on one side, the grub may be taken out and killed, and no harm will be done to the vine, if it is covered with soil. The next worst pest is the ash-gray bug, which sucks the sap from the stem of the vine near the root, and also from the ribs of the leaves on the under side. It lays its eggs on the under side of the leaves and also on the steam. The young bugs feed on the under sides of the leaves, and young and old may be seen feeding together at times. This pest must be caught and killed. It is useful to heap soil around the stem, wholly covering it, and spraying Paris green or cayenne pepper water upon the leaves on the under side. Corn-cobs steeped in gas-tar and laid under the leaves will keep them away by its trong scent to some extent. Another pest is a species of ladybird, which, however, differs in its habits from the ordinary kinds in feeding upon the leaves, both in its larva and mature state. It is about one-fifth of an inch long and oval, of a greenish color, with 15 black spots. The larvæ are hairy grubs which eat the leaves on both sides, leaving a network of fibres only behind them. This may be *Mysia quinque-decem punctata*, of which no complete history is given in any work upon entomology. Or it may be related to *Diabrotica duodecim punctata*, which is said to injure the leaves of the dahlia. The fourth and last is the well-known striped squash beetle, yellow and black in color. This eats the stem near the root below the ground and above it. It may be destroyed by spraying the stem of the squash with Paris green, and perhaps covering the stem wholly with a hill of soil. With all these pests, every one of them very active and persevering in their occupation, it is only by the exercise of constant and close vigilance that one can grow squashes in localities where they are abundant.

Cabbage Worms.

Take a handful of hellebore, sift it fine into a large water-pot, pour three quarts of boiling water on it, stir it well, and fill pot full of cold water. Take a syringe, or fine rose of a water-pot, and sprinkle the cabbages. In a few hours the worms will be killed.

In reference to the culture of pansies, a correspondent of the *Country Gentleman* says: "Pansy seeds should be sown in sandy soil, mixed with an equal portion of very rich compost, and when the plants have five or six leaves, transplant them into the beds or borders where they are to bloom, placing the plants four or five inches apart. Very large flowers can only be obtained by the most liberal use of fertilizers. The pansy is a gross feeder, and will not grow to perfection if its needs are not consulted. The beds should be prepared as richly as for asparagus or celery, and when they begin to flower give them a plentiful showering every night, when rain has not fallen. Hot, dry weather will prevent their making a fine display, if the beds are not well moistened and shaded from the noonday sun. In the hottest weather, water the beds both morning and evening. When the young plants have begun to flower, a weekly watering with liquid stimulants will be found very beneficial, and if yard manure is not at hand, soluble Pacific guano will make an excellent substitute. Dissolve two tablespoonfuls of the guano in a gallon of warm water, and pour it freely about the roots, but not upon the leaves. I find it the best stimulant for all my flower beds. Pansies can be quickly raised from cuttings of the fresh young shoots which spring from their roots, by planting them in sandy soil in the shade. They will make fine plants for autumn flowering, as young plants always bloom the finest. If all straggling branches and seed pods are removed from the plants raised for early spring flowering, they will also bloom luxuriantly in the autumn. With a pair of shears, cut off the first growth by the last of June, and do not let any pods mature excepting those especially desired for seed. It ruins pansies to let them seed plentifully in September and October. Those who gather these flowers with lavish hands for themselves and their friends, always succeeds best in their culture. The standard shape of the flower should be nearly or quite a circle, and the size should equal a silver dollar."

A bit of wire about the size of a knitting needle is an efficient weapon with which to attack the apple tree borer, or the borer in any other tree. Look around the butt of the tree, near the ground, and when you find his tracks, just insert the wire and push it into the hole until it reaches his retreat. It effectually prevents his doing any more mischief. Every tree should be examined and treated in this way every two weeks during the growing season. In old trees which have been neglected and which have been badly bored by these pests, it may restore the tree to vigor more quickly if the holes are plugged with a little grafting wax.

Rhododendron Culture.

There is probably no group of flowering shrubs more easily cared for by the farmer than the rhododendrons. For general culture they are probably the most desirable of the showy and popular plants. The greatest care in their culture is in the original selection of the plants. There are a number of distinct species in cultivation, only two of which are hardy at the North. Probably the most desirable of these species is the *Rhododendron Catwabiense* or Catawba rose-bay, which is a native of the mountains of Virginia and southward. This species is the one most generally cultivated, and is the parent of many of the most beautiful, hardy varieties. The other hardy species is *Rhododendron maximum*, or great rose-bay, a native of the mountains of Pennsylvania and southward, and occurring occasionally as far north as Maine. In its native State it is a much larger species than the preceding, sometimes attaining a height of twenty feet or more.

The rhododendrons are broad, glossy-leaved evergreens, whose unique winter foliage is alone enough to recommend them. The flowers are large and exqusitely beautiful, and, in the cultivated varieties, show great variety of color. They make a most beautiful effect when planted in clumps, although they are desirable as single specimens. They grow readily in any good garden soil, although that of a little peaty character is often desirable. Almost the only care the hardy rhododendrons need in this country is a screen during the severe weather of summer. This is best secured by planting them to the north of a clump of trees. They are very readily transplanted in May, or even in June. In fact, they stand moving well at most any season of the year, unless when they are growing vigorously.

Some of the foreign species are desirable for greenhouse or window-garden culture, but are not hardy for the lawn. This is the case with *Rhododendron Ponticum* and some others. The culture of these plants is attended to with considerable difficulty in England. The rhododendrons belong to the family of heaths, along with the wortleberries, cranberries and laurels, and like them often thrive best in a soil containing some peat, although that is not generally necessary for their successful management. The azaleas are close botanical relatives of the rose-bays and require much the same treatment. The most desirable of these plants for general culture is probably *Azalea Indica* and its many beautiful varieties. It is not hardy in out-door culture, but succeeds well in the window. It is one of the best plants to endure the warm, dry air of rooms. It has long been a favorite in cultivation, as it grows with little care and gives exceedingly beautiful flowers in great profusion. It is a small shrub, flowering prolifically when a foot high. It does not pay the general cultivator to try to raise fancy sorts of rhododendrons and azaleas.

Transplanting.

"There is a principle in transplanting cabbage and other succulent plants which is unknown, or overlooked by many parties. They seem of the opinion that the sooner a plant is reset after being taken from the seed bed the more sure it is to live. A moment's thought will show the fallacy of this idea; if it does not, a little practice will.

"The plant gets its supply of moisture and sustenance from the soil by means of numerous small mouths at the extremities of fine rootlets. When the plant is removed from its seedbed, more or less of these are of necessity broken, and the evaporation is continually going on from its leaves more or less rapidly according to the degree of heat and sunlight it is made to stand. If transplanted at once it follows that the plant must of necessity wilt badly, and if the weather is hot and soil dry it may never survive. If, however, on being removed it has its roots 'puddled' in muddy water and is then laid in a cool, moist place, in from 12 to 48 hours numerous small white rootlets will be formed, the leaves will stiffen up and every energy of the plant is set at recovery. In other words the plant is convalescent, and if given half a chance for its life will commence growing with renewed vigor. For these reasons, plants which have been well packed and transported considerable distances by express will often wilt less on settling, and start to growing sooner than those which are reset at once when taken from the seed bed."—[Exchange.

Progressive Farming.

PRIZE ESSAY.

THE ADVANTAGES AND RESULTS DERIVED FROM THE APPLICATION OF ARTIFICIAL MANURES TO GRAIN, GRASSES AND ROOTS.

By W. L. Brown, Hyde Park, Ont.

(Concluded.)

Let us suppose, now, that these elements of plant-growth were applied in a form by which they would come more rapidly in contact with the roots, as in an artificial fertilizer form, and we have, in Mr. Lawes' experiment, data to ascertain this point also, and here is what is shown on the same field: The application was 400 lbs. of sulphate of ammonia, 392 lbs. superphosphate of lime, and 200 lbs. sulphate of potash. The crop in each case was 18 bushels for the first 12 years, against 12 bushels for the first 20 years, by barn-yard manure; and 19 bushels increase for the last twenty-four years, against 16 bushels for the dung for the same length of time. Again, the two experiments showed that there were only 22 per cent. of nitrogen recovered from the dung in the shape of crops, and 32 per cent. from the chemicals; and only 7 per cent. of phos. acid, 8½ of potash, from the dung, and 9½ and 17¾ respectively from the chemicals, thus showing the great waste going on in the application of dung, and also the advantage to be gained from the proper use of artificial manures in wheat growing over the same materials supplied in dung. And why? Because the one is more available than the other, and comes sooner into contact with the absorbing roots. This is a strong point, as it is evident that not manure nor fertilizer as names concern the farmer, but the getting of food to the plant in the most available shape.

Farm-yard manure has been supposed to be absolutely necessary to reinvest the soil with its fertile power, and I am fully persuaded that this form of manure will be the only one in which fertility will be supplied by our farmers for a long time to come. Yet it has been found by experiment that it is costly, and does not produce the results of a perfect manure, as the following experiments will show. They were made by several eminent French agriculturists, and tend to strengthen the argument deduced from Lawe's experiments with barn-yard manure and artificial manures. An experiment made by a Mr. Bravey, on a stony soil broken up for the first time, yielded, with a complete artificial manure, about 30 bushels of wheat to the acre, and with a heavy coat of barn-yard manure, only about 11 bushels was got, and without any manure at all, about 3 bushels. Another experiment by a Mr. Masson yielded with a complete artificial manure, 40 bushels of wheat to the acre, and with a very heavy coat of barn-yard dung, only 19 bushels to the acre. The results with potatoes were still more remarkable, for by another experiment made with a complete manure, the yield was over 500 bushels to the acre, and with a heavy dressing of barn-yard dung, just one-half, or 250 bushels. Similar experiments were made with other crops, and the same results obtained between the complete manures and the barn-yard manure. Now this "complete manure," as it is termed, needs some explanation, for if there be such a thing, certainly the whole success of the preparation of artificial manures and their application and effect on growing crops, will be secured. A complete manure is nothing more than supplying the nourishment—nitrogen, phosphoric acid and potash—in the proper proportions required by each class of crops we raise on our farms. Now, this M. Ville, whom I mentioned before, by carefully observing the effect of these elements on various plants used separately, and also in combination, ascertained the proportions in which they should be used in each case; and thereby he has been able to formulate complete manures, in which, with tolerable accuracy, he has arranged a complete manure for each kind of plant.

The system pursued for ascertaining what material is wanted in the soil is thus represented on a trial field of wheat:

With complete manure.....	39 bushels.
Do, without potash	28 "
Do, without phosphoric acid.....	24 "
Do, without nitrogen	13 "
No manure.....	11 "

A glance at this will show that the nitrogen contained in the soil was deficient and only able to produce 13 bushels of wheat to the acre; whilst by supplying a sufficient amount of this element to the other constituents, 39 bushels per acre were obtained. From making similar experiments on various rops, M. Ville found what complementary artificial manure to mix with barnyard dung so as to suit exactly the nature of each plant; and he invariably found that whilst the influence of one of the elements, nitrogen, phosphoric acid, and potash, was very marked, that of another was comparatively slight. He thus got what is called the "dominant" of each class of plants or the one which exercises the greatest influence on their growth and development, consequently it has been established that nitrogen is the most important element in the culture of wheat, colza, beet-root, &c., and on the other hand that its effects were hardly noticable when it was introduced into manure for peas, lucerne, clover, or even potatoes; and that the greatest results were obtained by the use of potash for this latter group. Again, potash and nitrogen have but little influence on the growth of certain plants, such as Swedes, turnips of different kinds, &c.; but the effect of phosphate of lime on these is remarkable, and from its use in England large crops are produced, and hence phosphoric acid is the dominant of this class of plants, and from 300 to 400 lbs. per acre should be sown. With this data established a maximum yield of any crop may be secured at a minimum outlay, by properly increasing the application of some special artificial manure. For agriculture can only be made profitable as an industry by keeping down the cost of production.

Following the division of the three plant elements I first assume, let us look in what shape artificial manures are available as completing the value of barnyard manure.

There are, first, in nitrogen, sulphate of ammonia, nitrate of soda, and nitrate of potash—chemical salts which have a commercial value, and which will have to be bought according to supply and demand. Sulphate of ammonia is the most available and most profitable; nitrate of potash is out of the question, owing to the price in this country. In phosphoric acid, mentioned before as soluble in water, reverted, insoluble fine bone, and fine ground rock, or apatite, according as the phosphoric acid predominates. In potash commerce offers the sulphate, nitrate and muriate; the latter is the cheapest.

If we then want a manure composed of any of these elements, either singly or together, we can easily estimate the cost, for nitrogen, phosphoric acid and potash are now sold by the pound in manures, or are supposed to be, and the value of such depends upon their purity and upon their relative quantities. Now, a pound of sulphate of ammonia is worth..... .....22 cents
One lb. of soluble phosphoric acid.....12½ "
And 1 lb. of muriate of potash..... 4½ "

39 cents.

Or, say $26 a ton, according to this rate, but, of course, a complete manure would have a higher proportion of nitrogen, and, consequently, a ton would be of much higher value. But what should be considered is: Suppose an artificial fertilizer be bought at such a price, can it be transformed into a product that will pay for the original material in the rough, pay for the labor, pay interest on the land, and a profit in addition? The man who secures the profit, added to the natural resources of his land, is the modern farmer, and he who so utilizes his capital, labor and intelligence to produce the greatest results in the application of plant food, is the most successful farmer—capital to purchase the raw material, and intelligence to work up this material to a profit. A pound of phosphoric acid sells for 12½ cents, as I have said before; a pound of phosphoric acid in wheat, at $1.14 a bushel, is worth say 33 cents. Can the farmer buy phosphoric acid in the raw state and sell it in the manufactured wheat on the margin of 21 cents? And can he do the same with nitrogen and potash? The answer to this depends upon the apprehension of plant fertilization or the application of artificial manures: their preparation, application and effect on growing crops, and in maintaining the fertility of the soil to which they are applied, and this consideration is at the foundation of modern farming on soils that require to be annually fertilized.

In conclusion, let me briefly state that this question of the application of artificial manures does not, nor is it likely to, receive in this country that attention which its importance demands. When

farmers can raise 35 and 40 bushels of wheat to the acre, as they have done for the last few years in Ontario, with very little manure of any kind, they will not be apt to pay much attention to the preparation of any special manures. The fact is there is a great amount of latent fertility in the majority of our soils in this Province, which only need *thorough culture* to make it available as plant food. It is doubtful whether this generation of farmers will progress sufficiently or require to put into practice any of the more advanced systems of scientific farming in the application of artificial manures. Necessity has compelled the other countries of Europe to sustain the fertility of their soil by a higher class of farming than we have. There are such extensive fields of virgin fertile soils here that they continually keep up the productiveness of the country as a whole. Besides, before the application of artificial manures will become general, there will require a wider spread knowledge of agricultural chemistry amongst our farmers. It cannot be expected that a class of men can apply the principles of any science without being conversant with such, and how many of our farmers have even a smattering of the science of chemistry and its application to plant growth? Another thing, our farmers have no confidence in artificial or commercial manures, and it will take a long time to make them conversant with such. With the exception of gypsum, none of the artificial manures are kept sufficiently in stock to enable a farmer to procure them at anything like reasonable rates, as there is not enough demand to warrant dealers in making a regular business of importing. Then there are so many adulterations that the experiments that have been made with artificial manures in this country are anything but satisfactory. The Government should have an inspector to examine all commercial manures, and they should be sold by the pound, according as they contained a certain percentage of available nitrogen, phosphoric acid and potash. If a firm choose to adulterate their manures so as to sell a lesser per cent. of these elements, let them be marked as a low grade article, and then the farmer could buy accordingly.

There is one thing certain, our farmers do not take the advantage of a great amount of plant food around them that could be made available, and which is allowed to go to waste. Take wood ashes, for instance, and our farmers often sell them for five cent bars of poor soap for a bushel. Now, a bushel of ordinary wood ashes contains about 4½ lbs. of potash and soda, which is worth, commercially, and according to the price already alluded to, 6 cents a pound, and there is enough phosphate and carbonate of lime to make the value up to 39 cents, and this bushel applied judiciously to corn, potatoes and clover, will make a return of eighty or ninety cents. Of course a good deal depends upon the nature of the land upon which they are applied, and this I hold is the same in the application of any artificial manure, and hence no definite rule can be laid down.

Another source of waste is in liquid manure, which is allowed to be lost for the want of proper tanks to receive it. The ratio of nitrogen in urine and solid excrement, is as 2½ to 1 in favor of the former; besides this the nitrogen of the urea is in a more available form as plant food. There is 6 times as much potash in the urea as in the dung, hence the importance of saving the liquid manure voided by farm stock is evident.

I am fully persuaded that it is not the want of manures that our farmers are lacking in so much as the proper application of those within their reach. Why artificial manures are not used to advantage is because the farmer does not know what elements are deficient in the soil. And again, the majority, without knowing what artificial manures can do, or what they cannot do, assert that they are too expensive, or that they are useless. They, of course, form their opinions on experiments which have been badly carried out, and, consequently, wrong conclusions are drawn. There is nothing more recommendable as a guide to a thorough knowledge of the application of artificial manures and their effect on crops, than trial plots, and thus by a small outlay, and a little study, the farmer would be enabled to know, with fair accuracy, what dominant element of nitrogen, phosphoric acid and potash is wanted in his soil, and which is the most profitable fertility.

Do not use dairy implements made of soft wood. They soon become saturated with oil of old butter, and injure the quality of all new butter they come in contact with.

Manuring Indian Corn in the Hill.

Although the season is so far advanced, the following will be of benefit to intending planters:—

Since farm labor has been so high, the farmer has been compelled to raise his crops with as little hand labor as possible, if he would make his receipts exceed his expenditures. The practice of fertilizing corn in the hill, on land in good condition, has in a measure been abandoned, and the manure has all been spread broadcast, not because in all cases it has been thought to secure the largest crop, but because the cost of labor has been such that it would not pay to put a portion in the hill. It is true the expense of hand dropping concentrated fertilizers is not very large, but enough to raise a doubt if there will be a sufficient increase of the crop to pay it. Much depends on the condition of the soil; if the soil is not very rich, either the whole surface of the land must be heavily manured, or a small quantity put in each hill if it is desired to have the young corn start with much vigor; a soil that has already been made rich and well pulverized, is in a condition to make young corn grow vigorously, if all the fertilizers are spread broadcast.

When it is decided that the soil is not rich enough to secure a vigorous growth without something in each hill to fertilize it, the very important question comes up, as to what is the best to put into the hill. If the object is to force an immediate growth of leaves and stalks, care should be taken to use only such fertilizers as are in a condition to be soluble in water, and thus be at once available for plant food, or the plants will get but little from them until it has been through a chemical action in connection with the soil.

Mistakes are sometimes made by using a fertilizer that will not become plant food until long after the plant is full grown, thus failing entirely to assist the growth of the young plant. Indian corn, as a rule, will not pay for hand labor to put fertilizers in the hill, but when large fields are to be planted, and a corn planter is used that will drop fertilizer at the same time, without any extra labor, there are many fields that will yield enough more corn to pay for the fertilizer thus used; but our corn fields are most of them so small that they are planted by hand labor.—[Mass. Plowman.

The Cow Pea as a Fertilizer.

The cow pea of the south is nearly, if not quite, as rich in nitrogen as clover, and of, perhaps, equal value for turning under as a green manure. Unlike clover, however, it matures in a few weeks from sowing, and can follow an early harvested crop like winter grain, and being turned under in the fall, puts the ground in splendid condition for the next spring's planting or seeding. In the south, where the corn crop matures and is harvested early, the cow peas are sown among the corn at the last working, and after the corn is harvested stock is turned in to feed the crop on the land, thus making it serve a double purpose of feeding stock and returning the manure to the soil. Southern growers also claim that if the crop is mowed and saved for fodder, the roots alone, like those of clover, serve a valuable purpose in enriching the soil, though in such case the improvement is quite likely to be largely due to the ground during the heat of summer being densely shaded by the growing crop, which conditions are favorable to the development of nitrogen in the soil. We are strongly of the opinion that the northern farmer, certainly as far north as Central Illinois, might find in the cow pea a valuable and cheap fertilizer. It could follow the winter wheat on the same ground and be turned under in the fall or sown early in the spring, and turned under the first of September, would put the ground in fine condition for fall sowing.—[*Farmers' Review.*

How to Destroy Burdocks.

Docks are not numerous in the rich grounds adjacent to the house and barn, and in the fence corners. As each one, when permitted to go to seed, produces about 10,000 seeds, they are bound to spread and occupy all the ground. The burdock is annoying and disagreeable, owing to the fact that the burrs adhere to everything they come in contact with. The colts get their manes and tails filled with them, they cling to the faces and tails of the calves and cows, and the dog is tormented by their adhering to his soft hair. In fact, they are a perfect nuisance.

The best way to get rid of the docks is to spade them out, and lay the roots up to dry. If that is considered to be too laborious a job, take a sharp hoe and cut them off just below the surface of the ground, and in a few weeks go over them again, cutting all off that have sent out new leaves. Going over them a few times in this way will finish them all.

In half a days's time a man with a sharp hoe will generally cut all such weeds that are growing on an ordinary farm, and it is culpable negligence if they are not destroyed. I find no difficulty in keeping the weeds cut, and all the odd chores about the buildings done in parts of rainy days, when there is not time after the rain is over to go to the fields before dinner or supper.

The same treatment may be applied to wild carrots and wild parsnips, for as far as my observation extends, they only become noxious weeds when they are permitted to ripen their seeds in fence corners, and in the vicinity of the garden or farm buildings.

When weeds and briars are allowed to fill up the fence corners and thrive along the roadside, the farm presents a very unthrifty and unsightly appearance. A few of the half days that are spent at the village tavern, grocery or store, talking politics, if not in some worse way, will eradicate them all, thus adding much to the convenience and looks, as well as to the value of the premises.—[Examiner.

Fruit for the Farmer.

An exchange says: "Fruit and grain crops are apt to interfere with each other, and the taste that makes a man an expert in one, does not generally apply to the other. But this fact need not and should not prevent their culture for family use on a small scale. The small fruits simply require good land, the richer the better, and then clean culture. The practice of planting strawberries in beds, in pinched-up gardens, has done much to discourage their culture, because then all the work must be done by hand. Blackberries and raspberries are planted, if planted at all, next to the fence, where they grow in a tangled ticket, and soon become unbearable nuisances. All small fruits should be planted in an open field somewhere, not far from the house, in long rows, so that horse culture can be given on each side. The number of rows needed will depend, of course, on their length and the size of the family, but if well cared for, it will not require many. For instance: five hundred hills of strawberries, set 18 inches apart, and 500 more each of raspberries and blackberries, three feet apart, would go a long way toward supplying a family two or three times a day during the season; but if not enough, experience would show it, when the number could be increased or better care given. This number would occupy less than five rows across a fifty rod field, and would be almost an insignificant "patch" on a hundred acre farm, as regards space or the time necessary to give to it; and yet, unless the fruit could be bought very low at the door, it would yield an amount in delight and health not possible to produce in any other way. Strawberries, particularly, are not surpassed in popularity and health giving properties by any fruit in the world, unless it be peaches, and peaches are more difficult to grow. The horse work can be done in a few minutes by a man, while women and children can pull the runners from strawberry hills and the weeds that the cultivator does not touch, as well as the trifle of clipping that raspberries and blackberries require when the young canes are growing. The cutting out of the old wood, and the shortening in the laterals, any man of sense, or even a stout boy or woman, can do in a little time as spring advances, so there is no just reason why a family should be deprived of such luxuries."

The Germantown *Telegraph* says that it is pretty generally believed that the rag weed, which is more or less present on every farm, is the cause of bitter milk, whenever it appears. It is one of the worst pests upon a farm. It covers, when it gets a start, everything. It is even believed that the pollen from the blossom produces the hay fever, indirectly if not directly.

General Laurie well deserved the sword of honor and accompanying compliments presented him in London by Sir Alexander Galt upon behalf of the Nova Scotia militia. Just as appropriately, however, he might be presented with some emblem of agriculture, his enthusiasm, exertions and success therein having very much stimulated that industry, and his fine herds having been for many years a notable feature in Provincial exhibitions.

Sorghum Affected by its Food.

The following, which we find in the Southern Planter (Richmond, Va.), is well worth reading by sorgo growers. The writer says:

In your editorial, in reply to my inquiry for a specific manure for sorgo, you say that my idea is news to you, that sorgo needs a specific manure, or that the quality of the sorgo is affected by the kind of manure that is used. I agree with you, that sorgo is like the hog, and it is not particular as to what supplies its appetite, but for that very reason, I take it, that we ought to be the more particular what kind of manure we place within its reach.

Now, if you will bear with me a little, I will give you my experience as a grower and manufacturer of sorgo, embracing a period of about eight years, working into sorgo each year the cane that grew up from ten to forty acres of land.

In 1878 I planted a lot in sorgo and took dirt from under an old house that had been standing about thirty years, dropped one single handful of dirt in each and every hill—hills three feet each way. The cane came on fine, large, rich stalks. I worked the cane into syrup myself; but to my surprise the syrup was unfit for use, having a salty, nasty taste. Evidently it had fed largely on the saltpetre and the general filth that was under the old house—hog-like.

Then, again, I planted a lot in sorgo, on which cows had been penned, until it was very rich; the cane grew wonderful, made a yield of about three hundred gallons per acre, but as the syrup was cooking on the pan (Cook's Evaporator) the by-standers could actually smell the cow-dung in the whole mass.

And again, I planted a very rich piece of bottom land in sorgo; the land some years before and for several years was an old pond, but had been drained and cultivated in corn. It produced large crops of corn. I concluded to try it in sorgo. The sorgo grew to an unusual size, ripened up fine and in good time; was cut at as near the right time as I knew how, but to my great surprise when we passed the cane through the mill (a heavy four-horse Victor mill) we got but little juice, and as the juice passed over the evaporator we got but little syrup. This juice, when tested with a French glass saccharometer, marked only a degree or so richer than soft water, which you know makes zero. Now, while the hog was on this lot making cane he found plenty to supply his appetite, but as soon as you put him to making sorgo he gets down to the starving point.

Hence my inquiry after a specific fertilizer for the sorgo crop, as it takes but a few crops to completely exhaust land on which it grows. Of its properties to produce a syrup, observation has shown me that "just any thing" will not do as a manure for the sorgo crop. Sorghum has such power of assimilation, that it even partakes of the color of the soil on which it grows, besides partaking of the quality or flavor of the manure on which it feeds.

Soil Exhaustion.

When we consider the composition of an ordinary soil, we are apt to be surprised, at first, at the very small percentage of really valuable elements that is present. These elements of fertility are those which are absolutely necessary to the growth of plants, and are therefore generally called plant-food. These constitute a very small percentage of the total mass of the soil—taken to a given depth. This is especially true of the three most important elements—phosphoric acid, potash and nitrogen. It should be borne in mind that these elements are quite indispensable to the growth of plants and to the general productiveness of any soil. A soil deficient in nitrogen may successfully grow clover, peas, and other leguminous crops; but we may not hope to produce from it good crops of wheat, corn, oats, or other cereals. A soil that is deficient in phosphoric acid will not profitably produce any plant of which the quantity and quality of the seed is the prime object, or incidental to the main object. Potash is a necessary constituent of the sap of all plants, and is invariably found in the ashes of the stem, bark, leaves and seed—at least of all ordinary inland plants.

It is a question worth considering how much hoeing and cultivating, or rather how little, would be given to crops were it not for the presence of weeds. The farmer is apt to say, "The corn or the potato field is getting very weedy and must be cultivated," but one rarely says, "The soil must be stirred."

Poultry.

Lime for Hen Houses.

Through the summer months the hen houses should have a thorough cleaning out once or twice. Before cold weather sets in, if there are any doubts as to the cleanliness of the house, it should be gone over and done. In the first place remove all the droppings from the house and sweep the floor clean. Then sprinkle air-slacked lime and ashes thickly thereon. Wash all the perches (after all patches of manure have been scraped off) with boiling lime whitewash, put on with an old brush, and carefully worked and rubbed into the cracks, being careful to cover every part of the roost thoroughly. Lime is the greatest cleanser and purifier known. Any one at all acquainted with insects would not for a moment think of smoking them out with brimstone. A thorough cleansing must be gone through with twice each year. After the floor is cleaned, the siding, nest-boxes, perches and every appurtenance belonging to the inner building must be thoroughly whitewashed before a riddance of the pests can be effected. They dread whitewah; and delight and revel in filth. Use strong unleached wood ashes, if they can be had, and keep the floor dry and covered with them. If not, employ quick-lime. If the droppings are dried up immediately, their living is gone.—[Michigan Farmer.

The Poultry Fancy.

The Mark Lane *Express* says:

"The fancy for poultry has, during the last few years, greatly increased, and the various improvements achieved have been recorded by the press; but inasmuch as the real fancier does not, as a rule, aim at profits other than those derived from his birds in their fancy capacity, so has he been represented—his short-comings unnoticed, his weaknesses petted, and his avidity encouraged. If any person with a complete grasp of the subject, and of unbiassed mind, could show us the exact state of the poultry market when the Cochin mania first broke into the unassuming solitude of the poultry yard, the result would be surprising; if he could make a comparison between that period and to-day, showing the number of fowls bred per head of the population, we should be still more startled; but had he been able to tell to what extent the people would breed, sell and exhibit poultry, he would have encouraged them to believe that the present generation would offer chickens at 2c. a pound, and eggs at 5c. a dozen, as some trumpery pamphlets state is done. But the real state of affairs is quite different. Some forty years ago chickens were not half so dear as they are now. Since then breed upon breed has been introduced into our country. China has sent us her celestial Cochins, India her Game, and America the best she had to to offer. Europe, too, has been ransacked, and we have had every breed known to our neighbors; and, last of all, we have had the Oriental chicken, the Brahma, which some believe to have come directly from the East, instead of being a manufacture, as it really is. As fast as birds could be invented they have been supplied to the fancy, which, however, is still craving for more, and prepared to receive any novelty, so long as its lineage is traditional or its race problematical. As these birds have arrived on our shores, so have they been pampered and petted, bred and re-bred, until the rage for fancy fowls has spread from shore to shore, and until the excited body, of which so many of us have been members, has organizd poultry exhibitions in the remotest parts of every county. This has all been done under the false pretension of encouraging the 'production of poultry.' But we ask, is there any great difference between a body of men who would attend an exhibition of jumping frogs to see the prize awarded to the one weighing the heaviest, and the body who will contest for a prize for weight in a duck, and which induces them to cram it for the purpose, or those who strive to produce the largest crest in a hen's head, the longest leg in a cock, or the greatest amount of foot feather in an Asiatic? The labor entailed is in every case a pleasure, but there is no public benefit in the result. The frog, the cock-fight and the modern poultry show, all aim at amusement, and the only merit the last named can lay claim to is that it is more rational and less exciting than the others. This is plain speaking, but it is time to speak; and the fancier who minces the matter, preferring to allow the world to continue to believe that its exhibitions instruct and improve the people in a particular direction, is insincere. In answer to the question, What has the poultry fancy done for profitable poultry? we must answer, clearly enough, nothing It has not made chickens cheap; while at some seasons of the year poultry for the table is only within reach of the wealthy, and new-laid eggs are as rare as they should be plentiful. The imported fancy poultry may have added constitution to the farm-yard flock, but it has introduced coarse quality and bone, which nobody wants. After all this hub-bub, we have to fall back upon the old English breeds, the Game and the Dorking, for meat, while we can get more eggs from such birds as the Minorca and the Black Hamburg than from any of the special favorites of the fancy. Moreover, the little knowledge which is pressed upon the public in the utilitarian direction proceeds, not from the fancier, but from the individuals who have learned how unreal is everything connected with the exhibition system when it is compared with real sterling work."

Spading the Yards.

It is, of course, desirable to change the yards yearly, where it can be done, and where there is a goodly number of fowls running in the yards; but this cannot always be accomplished, on account of a want of room, as a general thing, and something else must be done which will insure healthfulness and profit, so one must resort to plowing or spading. If the yard is a large one, large enough to admit of a horse and plow and working it properly, it is best to plow up the yard thoroughly, as early in the spring as it can properly be done, and then afterwards about monthly as long as the weather will permit it. This will prevent the soil from becoming packed down hard and solid, will keep the droppings worked into the ground, and will give the birds fresh earth, not merely to run on, but for them to dust in, etc. Where the yards are small, but small flocks being kept in each yard, spading is resorted to. Every week a part of the yard can be spaded up, furnishing the fresh earth, worms, gravel, etc., which the birds like so much, and which is so conducive of healthfulness, comfort and profitableness. There is no necessity for raking the place, after plowing or spading, as the fowls will take care to do that effectually, and especially so if whole corn is occasionally scattered over the piece. Those who are successful in rearing poultry in confinement are the ones who regularly spade or plow their yards, if they cannot change them regularly, or have additional runs.—[Poultry Monthly.

Where land is covered with weeds it seldom or never pays to let them grow for the purpose of plowing under as green manure. Almost all weeds are robbers of fertility, and only help the soil by being turned to decay at as early a stage as possible.

Few farmers know that clover is one of the best crops to clean out foul weeds from their soil. Its rapid growth enables it to smother all except the strongest rooted perennials, and even these it will greatly keep in check. But it will only do this if cattle and other stock are kept off at all times.

The objection to sorghum seed meal that it contains too much tannin to be healthful food, is removed by divesting it of the hull. All the tannin is in the hull. As the meal is quite as nutritious as that of corn, and can be very cheaply produced, we shall not probably long lack inventions for clearing it of objectionable matter.

There is a greater general improvement in the breed of hogs than in any other farm stock. Farmers find that the only profit in a hog at present prices of grain is in having a good breed and keeping them always growing. The race of pigs that, as the pioneer said, he had to tie knots in their tails to keep them in the pen, is much less common now than formerly.

A club of fourteen year old boys in Webster Parish, La., has been organized to compete with one another in the cultivation of one acre of corn each. The lad who produces the largest crop of corn on his acre is to receive five bushels of corn from each of the other members of the club. Each selects his own acre and manures and cultivates it to suit himself. This is a good idea for boys everywhere to act upon. Organize early in life and early in the season.

Correspondence.

NOTICE TO CORRESPONDENTS.—1. Please write on one side of the paper only. 2. Give full name, Post-Office and Province, not necessarily for publication, but as guarantee of good faith and to enable us to answer by mail when, for any reason, that course seems desirable. 3. Do not expect anonymous communications to be noticed. 4. Mark letters "Printers' Manuscript," leave open and postage will be only 1c. per ½ ounce. We do not hold ourselves responsible for the views of correspondents.

Road Making.

SIR,—I was pleased last month to see you deal in your incisive and matter-of-fact way with the question of road-making in this country. Without doubt you struck at the root of the difficulty when you said that the statute labor system is what stands in the way of improvement in our roads. In fact the only good roads in Western Ontario are such as were made by Government under the contract system, or have been constructed by counties under a general by-law, and town or private roads built as a business enterprise. As instances I may cite the roads in the County of York; the Macadamized road between Hamilton and Waterloo County; the Brock road between Hamilton and Guelph; the Governor's road between Hamilton and London, and the Bruce County gravel road. These, and such as these, constructed as they were, from 30 to 50, or more years ago, are the only roads, with few exceptions, which have a good solid road-bed. It may be set down as a rule that all roads which have been maintained from the beginning on the statute labor system are no better now than they were 20 years ago, and are simply a standing disgrace to our country. Some sections make a worse exhibit than others, the nature of the soil having something to do with the condition of the highways; but a very great deal, however, depends upon the inhabitants. Without seeking to be too invidious, I think that it is generally conceded that the County of Haldimand lays in the very tail end of the rear in the matter of roads. There has been no public effort made in any way whatever to construct road-beds other than by the most primitive means, and to-day, "as it was in the beginning," there is nothing but the heavy clay, which for adhesiveness is hard to beat, making travel a practical impossibility in spring and fall. It was in Haldimand County Council where the advisability of making two good leading gravel or stone roads was being discussed, that only the Reeve, who was most violent against what he considered the proposed extravagance, said, in the course of his remarks, that he "was opposed to the scheme of building a stone road, because the boys would do injury to their farms by throwing the stones into the fields." The poor man had evidently not been very far from home and didn't want to indulge in the luxury of travelling. At all events he and the majority with him succeeded in burking the much needed improvements, and Haldimand continues to be the most unprogressive county in our country. It is well said that the roads of a country are a good index to the character of a people. A live, energetic and intelligent people will not continue to wallow through mud year after year when a reasonable expenditure will give them good roads. As an instance of the truth of your remarks about the inefficiency of the statute labor system, I may cite the following: A pathmaster on one of the most travelled roads in the county set men with horses, carts and scrapers to work to remove mud or loose soil from one part of the road to another. What the object was I never could learn, but the fact of the removal of the mud was patent, as it was dumped in little heaps for a long distance all over the road-bed and left without spreading or fixing in any way whatever. When the mud hardened the highway was in the worst condition imaginable.

It is useless to waste time in arguing the question. The statute labor system is no longer a benefit It may have been necessary in the early years of settlement, when the farmers were unable to pay out ready money for road-making, and when good work was done. People were earnest in whatever they did in those days, but the present generation look upon road-work more in the light of a holiday spell I have seen half-a-dozen men with picks and shovels and a span of horses and a wagon, who did less work in a day than two men would do by honest work with a wheelbarrow. Not one pathmaster in fifty knows the first principles of road-making, culvert building, or ditching, and but few of them care to learn.

I hope you will continue to show up the disgraceful state of roads, and expose the shortcomings of all public men who stand in the way of the progress of our country.

CANADENSIS, Paris, Ont.

SIR,—Would you kindly tell me how to measure off an acre of land correctly, as I do not know exactly how many feet go to the acre? Also if raspberries, currants, gooseberries and apples will grow here, the thermometer going as low as 35° and 40° below zero in winter? Also if clovers will do here, and what kind of grasses would be best to use in seeding down a piece of land which I want for hay and pasture?

QUEBEC, Indian Head, N. W. T.

[Our correspondent can measure an acre in several ways. For instance, an acre contains 160 square rods, and by using any multiple of this or divisor, gives the sides of the field. For instance:

$\frac{160 \text{ rods}}{10} = 16 \text{ and } 10 \quad | \quad \frac{160 \text{ rods}}{8} = 20 \text{ and } 8$

Which would be respectively the sides of an acre in rods. With regard to the raising of apples, we are doubtful if only the hardier varieties would flourish on the open prairie; but we think if the Russian plan were followed of planting the trees thickly and keeping cut down low so as to form a protection, they may be raised the same as in Russia. We have seen several orchards in New Brunswick and Nova Scotia planted on this plan which were a success. We should like to hear from any of our subscribers in the North-west on this important subject. There is nothing to hinder the smaller fruits you speak of from thriving. It is doubtful if clover will succeed during such rigorous winters—the root would be apt to heave out. Timothy, Orchard and Kentucky Blue grass should thrive, but the only way to determine all these points of the growth of fruit and grasses is to try experiments for yourself, as different places are influenced by local circumstances.]

SIR,—(1.) Can you give in the ADVOCATE any information respecting any tile machine for use on the farm? I saw one at an exhibition once in Guelph. It was worked by hand, set in the drain, tiles being made and laid in one continuous pipe, made of water lime and coarse sand. Could you say anything respecting the merits or demerits of such a machine, where it can be got, the price, &c.? (2.) I have some natural growth apple trees (not yet bearing). They are almost covered with something like lice about 3-32 of an inch long. What are they? What should be done with them? Expecting an early visit of the ADVOCATE, I remain,

W. S. G., Goldstone.

[1. Can any of our correspondents give the desired information? 2. The louse you complain of is the *Aphis;* the remedy is spraying your trees with a solution of carbolic acid.]

SIR,—Can you give any good formulæ for preparing bones for the land that will not be expensive, other than grinding? Please answer through the columns of your journal and oblige.

H. H., St. John, N. B.

[Bones may be reduced in several ways. By burying in horse manure until decomposition takes place; by the chemical action of unleached ashes; burying the bones until the alkaline action decomposes them; or take one-third part of sulphuric acid to the weight of bones to be reduced, and dilute one-half by water, and leave until the bones become soft.]

SIR,—Would you be so kind as to tell me, through your valuable paper, what is the reason of young turkeys dying at the age of from three to four weeks old? W. M. W., Shannonville.

[At this period they are tender, and we know of no cause only damp, unclean quarters, and cold. They should be kept in-doors, especially a cold spring like this, until the day is far advanced, and not let out at all if anyway stormy.]

SIR,—Would you kindly inform me through your valuable columns or otherwise which is the best method of growing sweet potatoes, the time for planting, the nature of the soil required and where the best seed can be obtained? I would like to grow some this season and would be thankful for any information. T. G., Sandwich.

[See answer to J. Y., on page 115, April No.]

SIR,—I wish you, if possible, in June No. to give your opinion, and that of others of experience, of the best way to start an egg farm, the best buildings, and the best breed of fowls for the business,—that is, those that can be disposed of for table fowls as soon as their usefulness is gone?

C. N., Northport, Ont.

[To give full and satisfactory information on poultry raising on a large scale would require more space than could be supposed to be devoted to ordinary newspaper correspondence. We are of the opinion that poultry raising on a large scale is extremely hazardous, from the fact that not more than fifty hens should be allowed to run in one flock, owing to the liability to contract disease; hence on a poultry farm it would be required to have separate houses, at least ten rods apart, for each fifty fowls. Each of these houses would cost, with rough boards, about $25. For every fifty hens half an acre should be allowed. Of course the success will greatly depend upon experience and knowledge of care and management. We would advise our correspondent to start on a small scale and gradually extend his operations as he finds the business pays. By no means make a large outlay on an egg farm without a thorough knowledge of the business. The Plymouth Rocks, Leghorns, Dorkings and Asiatics are all good, either as layers or table fowls.]

SIR,—I see an inquiry in your May number about wire-worms eating corn, and I will send you my plan. I have used wood ashes with good effect. I do not condemn old pasture because we raise some of our crops of corn on this kind of land. Give it plenty of room and good cultivation, and do not be afraid to claw some of the dirt from the roots and sprinkle on some wood ashes.

R. T. C., Ingersoll, Ont.

SIR,—If I may be allowed a suggestion, I think it would meet with general response from your farmer friends, if you were occasionally to advocate agricultural education. You are all right in Ontario with your Guelph College; the farmers and people generally should be proud of such an institution. Those of our young men who have graduated there speak in the highest terms of it. We want in Nova Scotia a similar establishment; in fact we should have an experiment station in every county. The necessity of such a depot of agricultural and horticultural knowledge is apparent from the numerous inquiries that appear in your monthly issues on the most common-place subjects. These are not my views alone. They are being canvassed in the societies, agricultural clubs and the granges. As the ADVOCATE carries weight, it will help to forward this much desired object. The men in our Lower House are chance men; they don't know their constituents. Law, physic and the shop comprise the batch, and agriculture is out in the cold. The people in the country districts are beginning to feel the effects of the chill.

W. K. O. H., Wolfville P. O., N. S.

SIR,—Send a description of the Southern fodder corn, and also instructions how to plant it.

G. C., Charlottetown, P. E. I.

[Ensilage corn or Southern corn fodder, either for drying, ensilaging or soiling, may be sown broadcast or planted in drills ten inches apart. Half a bushel to the acre either way is sufficient; sow from the first to the middle of June.]

SIR,—Please answer the following and oblige: At the Lucknow Spring Show the owner of the horse that the judges awarded the second prize, refused to take the ticket, expecting to get the first prize. Can he compel the society to pay him the prize money if he calls for it? 2nd—Would it be legal for the judges to give the second prize to the horse they intended to give third prize, after the second prize one refused to take his ticket? R. B. R., Amberley.

[The person to whom the judges awarded the second prize can legally collect the money from the society, unless the judges reversed their decision previous to leaving the ring.]

SIR,—Will you please, in your next issue, give your opinion as to the best time to sow plaster on clover? I contend that the clover should be far enough advanced so that the leaf will receive the plaster, but would like to have your opinion on the subject. By so doing you will oblige.

A SUBSCRIBER, Campbellford.

[The time to sow plaster will depend upon the advancement of the season. The best time is when the plant is about six inches high.]

SIR,—In the May number of the ADVOCATE, page 135, I read as follows: "Five months of snow and drift has *smothered* the plant out completely along fences." Now, sir, I constantly observe in journeyings through the country that it is just "along the fences" where the snow has *not* "smothered" the wheat, but on the contrary has so well protected it that it is just along the fences and sheltered places, where the most snow remains, that the wheat looks green, strong and healthy. So much for "smothering." Now, I respectfully ask for a *rational* explanation of this so-called "smothering," and not only *rational*, but accurately scientific. FARMER, Blenheim.

[Our remarks about the "smothering" of wheat along the sides of fences, where an immense weight of snow and ice has been during the winter, were made from personal observations this spring, and from information received from various parts of the country. On the Silver Medal Farm, in London township, we noticed one of the finest pieces of wheat we have seen this spring, but where the heavy drift had been along a board fence for three or four yards wide, there was scarcely a spear left, and the line of demarkation was as straight as if run by a line, whilst the rest of the field has a rank and luxuriant growth. We have seen other fields the same way. So much for the observation and the fact. With regard to the scientific aspect of smothering which our correspondent inquires about, we may say it is difficult to account scientifically for any phenomena, as, philosophically speaking, we know nothing; our knowledge at the best is only relative, and absolute knowledge is a contradiction. The celebrated French naturalist, Buffon, who vainly boasted he was master of the natural sciences, could not tell when asked how a blade of grass grew, or why it dried. The only rational hypothesis why wheat smothers is from the fact that plants receive from 90 to 95 per cent. of their support from the atmosphere, and hence if air be excluded by a heavy weight of snow or anything else, the plant dies for the want of breathing or support. Our correspondent can prove this by placing a plant in a vacuum, when it immediately dies.]

SIR,—Fruit buds are all looking prosperous for an abundant crop, the unusual cold and backward weather having kept them in check until we have reason to hope for favorable weather onward. Having recently seen reliable parties from six or seven townships of this county, they all agree in saying the wheat crop has not been so near a total failure for many years. But if it will have a tendency to check the too *pernicious* practice of sowing wheat in succession for 3, 4 or 5 years, so prevalent here, it will not be an unmixed evil.

Washing vs. not Washing Sheep.—This matter has often, in the last few years, occurred to me as *one* of the old customs that needed reforming. Hundreds of thousands of pounds of wool shipped from Texas, all unwashed, brings the same price as the same quality of washed does here. I have tried it.

I would suggest that as many of the readers of the ADVOCATE as can shear one or more sheep unwashed, weigh, then wash and dry the wool, and weigh again, and note the loss and send to the ADVOCATE for publication.

This will not, of course, give a fair test, as the body secretes an oily substance which increases the weight, and the wool washed and dried off, *the sheep would not get it.*

Unpatented Corn Drill.—Procure a piece of gas pipe, or any tube of any material, with about ⅞ or 1 inch bore, 2 feet long, or thereabout; put as much corn in a common bag as you wish to carry, gather the top of the bag around the pipe, tie tight, open your furrow to receive the corn; take the bag on your shoulder, the tube in your hand, point towards the furrow; if the corn does not begin to run, give it a little motion and start for the other side of the field, walk as fast as you can, and when you get there you will have a row of as evenly sowed corn as you can wish. The great importance of fodder corn induces me to trouble you with the above. Many have no drills; this will answer well, and is very fast.

PROGRESS, Jordan Station.

SIR,—We are having a very backward spring, cool and wet, which has caused great delay planting corn and seeding spring grain. The fruit crop will be light. Horses, cattle and hogs very scarce and high, and perhaps will be for a duration.

J. H. S., Logan, Ind., U. S.

SIR,—Would you or some of your numerous readers who have had experience in shingling a house the second time, give me the benefit of their experience? Mine is a story and a half brick; it is lathed and plastered partly on the rafter. Would you shingle on the old shingles, or would you remove them? The plaster is comparatively good as yet; I would not like to lose it. By answering the above you would oblige.

UNEXPERT, Nairn P. O.

SIR,—Part of my farm was pretty well run down before I got possession. As it is situated too far from any place where manure could be drawn profitably, what would be the best means of restoring the land? A neighbor suggests sowing rape and plowing it in, but as I have had no experience in growing rape, perhaps you will enlighten me. How would it do to raise some green crop and put a lot of sheep to pasture all summer?

W. F. P., Telfer.

[Sowing rape might answer your purpose, but it will depend considerably upon your land, and also what application you intend to make of it. Rape for manure serves best when eaten by sheep and their droppings left on the land. For a green manure crop we should recommend either buckwheat or Hungarian grass, in preference to rape Thorough drainage is a necessary condition in treating all soils.]

SIR,—Please tell me, in your next issue, what is the best way of keeping grubs from destroying the roots of melons; also the striped bugs on squash leaves. I. F., Oshawa, Ont.

[Squash bugs may be killed by a weak solution of Paris green in water, say 500 parts of the latter to one of the former; sprinkle in the evening. Pyrethrum is another remedy applied either in solution or the dry powder; powdered sulphur will also kill them, applied freely to the vines.]

SIR—Please inform me, through your valuable paper, as to the quality of white birch ashes as a fertilizer. How many to put to the acre of meadow land? Are ashes good for grain crops and root crops? T. A. A., Elgin, N. B.

[White birch ashes, or ashes of any kind, make an excellent manure for corn, potatoes, clover and grasses, especially as a top-dresser for the latter, they are not so good for several grains, as they contain no nitrogen. Ashes are rich in lime, potash, and phosphoric acid, containing about 31 per cent. of the first, 8 per cent. of the next, and over 2 per cent. of the last named elements. You may apply from 20 to 60 bushels to the acre, as you find it convenient.]

Park's *Floral Magazine* gives the following directions for propagating the rose: "Take a young branch, cut a slit just below a leaf-bud, put the branch through the hole in a common flower pot until the slit in the bark is inside the pot, then fill the pot with sandy soil, set it on the ground, bending the branch and pinning it down without breaking; keep the pot well watered and the branch will root in a few weeks, then cut outside pot, without disturbing the roots. The large white rose and many others that do not root easily from a slip, can be propagated in this way, as can, also, most shrubs and woody plants. Of course it will be understood that the branch should be pushed upward until several inches are above the rim of the pot, and the earth pressed tightly around it, the same as though potting any ordinary plant. The point to be observed is to leave the branch unsevered, so that it may draw strength from the parent root, until its own roots are started. Leave it undisturbed in the pot in the cellar until the next spring, then set where it is to remain."

FERTILIZER FOR STRAWBERRIES.—Bone-dust and wood-ashes together make an excellent fertilizer for strawberries. They may be scattered either separately or together over therows at once, so that the first rain will take them into the ground.

The small fruit season will be upon us again, and now is a good time for growers to overhaul their last year's baskets, and burn up the greater part of them. Fruit packed in clean, new baskets or boxes will always outsell that which is put up in dirty ones, and the grower who recognizes that fact will make the most money out of his crop, other things being equal.

Veterinary.

SIR,—I have a cow with a lump on the cheek, and which always proves fatal to the cattle in this country. Is there any remedy for it?

A. P, St. Pauls, Manitoba.

[It is a disease of the bone, called Ostea Sarconia, for which there is no cure. Get the animal in good condition as soon as possible, and butcher as soon as at all fat.]

SIR,—About two months ago a horse owned by my neighbor struck his hind foot against a sharp pointed fork; one of the prongs entered the heel close by the edge of the hoof, which seemed to leave little or no wound, but since then he has not been able to touch his foot to the ground, and until the last week or two has suffered great pain, since which time it appears much easier, and seems as though the hoof is going to come off. How would be the best way to treat it? And if the hoof did come off, how long before a new one would be of any service to the horse? Please let me know in your next journal.

W. J. H., North River, P. E. I.

[Cut a hole in the hoof where you think there is matter, to allow it to discharge, and keep the foot well poulticed; when the new hoof grows pare it frequently to make it grow in proper shape. It will be some months before the animal will be fit for work.]

SIR,—What treatment would you recommend for a horse subject to colic or belly ache? What is best medicine to give when attacked with the pain? ENQUIRER, Acadia Mines, Colchester Co.

[Relieve the pain by means of an opiate and cause movement of the bowels. To do this in mild cases, the following will be good in connection with injections of warm water: ½ to 1 oz. of laudanum, 4 to 5 drachms of aloes, and 1 pint of hot water. If relief is not obtained, give as a second dose ½ oz. sulphuric ether, ½ oz. laudanum, ½ oz. spirits of camphor and ½ oz. essence of peppermint. Mix in a pint of gruel.]

SIR—I have a six-year-old horse that has, during the last month, passed three or four worms about eight inches long and nearly ¼ inch through. He is always very hearty and would drink a large amount of water, if allowed; and, although well fed and attended to, is always in poor condition, and his dung is invariably very soft, especially what he discharges in the early part of the day. Can you kindly prescribe a remedy. W. W.

Holland, Man.

[Give, once a week, a pint of linseed oil and 1 oz. of turpentine.]

SIR,—I have a 3 year old colt I broke this spring. On Monday last I drew 24 bushels of wheat to mill; there were some big hills; the next day I started to go after it; her shoulder was swelled so big she could not go; she could scarcely drag her leg; the muscles are swollen a little way from her body. What can I do for her? S. S., Delta P. O.

[Bathe well with hot water, and afterwards rub in any liniment.]

The prize list for the Provincial Exhibition, to be held at Guelph in September, is now in press and will shortly be issued. Important changes and improvements have been made in it, and the Board claim that they offer the best prize list ever offered at a Provincial Fair. The prizes for the Galloway, Angus and Jersey classes have been made equal with the Hereford, Ayrshire and Devon classes, and a silver medal given for best herd, 1 bull and 4 females in each. A class has been added for selections, of which we understand three or four herds have been and are being imported. In the Shorthorn class the Prince of Wales' prize is given for the best herd, 1 bull and 4 females, and a $40 prize for the best four calves under one year, sired by the same bull. A class has been added for Shropshire Down Sheep, and a silver medal for best pen of sheep of each breed, pen to consist of one ram, two ewes two shears and over, two shearling ewes and two ewe lambs. The city of Guelph has voted $10,000 towards erecting the necessary buildings, and there is every prospect of a successful show.

The Apiary.

How to Hive a Swarm of Bees.

The season for swarming is fast advancing upon us, and the next bright day, perhaps, the bees will be rushing out to migrate to a new colony. If you have box hives and black bees, and wish to reform from the errors of your way, now is the golden opportunity. Have your movable frame hives ready and hive your new swarms in them. A new colony of my golden banded Italians have filled a ten frame Langstroth hive with brood and honey in twenty-one days, without the assistance of foundation. When the bees swarm, have no ringing of bells, beating tin pans, and such nonsense; wait patiently, and nine times out of ten they will settle of their own accord; if they don't, all the racket you can make about it will have little effect in altering their determination. They may say what they like about using a fountain pump, throwing sand, and discharging fire-arms among the swarm; but, in my experience, when they strike for the woods, your only hope is in following them, and they may go a hundred yards, or, as has been known, even as far as seventeen miles before alighting. After the swarm settles, brush your hive out nicely (no need of fooling with peach leaves and salt water), set it where you wish it to remain, saw off the limb with the bees on it, lay it on a board at the entrance of the hive, and in a short time the bees will be established in their new quarters. If it is not convenient to cut the limb, or other object on which they may light, take an old wool hat, secure it to a pole and hold it near the cluster, shake or smoke a portion of the bees off; when they attempt to return, put the hat in the way, by the side of the cluster, until quite a number have settled upon it, after which you will have no difficulty in getting the whole swarm. When they have all settled on the hat, walk gently to your hive, and deposit them on the board as you would the limb. If they should be disposed to clog the entrance to the hive by stopping to hum their satisfaction, keep it open by gently pushing them aside with a twig. You may facilitate their march by pushing forward the rear of the company in the same manner. They will go to work at once, and build small bits of comb by the next morning. Raise the rear end of the hive three inches above the level of the front, to make them build straight combs. If two swarms should be out at the same time, cover the first to alight with a tablecloth or sheet, to hide them from the others. Otherwise they will all light in the same cluster, much, perhaps, to your dismay.

If at any time during swarming, you can discover and secure the queen, you have the matter in your own hands. Cage the queen, take the hive in which you desire the bees, and set it in the place of the hive from which the swarm issued. The bees will soon discover her absence and returning to the old stand, will enter the new hive. After a portion of the swarm has entered, release the queen at the door and allow her to go in with the swarm. When they are all hived, set them to a new stand and return the old hive in its proper place. I hive most of my bees, that are allowed to swarm naturally, according to this latter plan, giving them a few frames of brood from the old hive. By clipping the queen's wings you will be able to pursue this plan altogether, if you wish, avoiding a great deal of anxiety and all possibility of absconding swarms.—[American Farmer.

Bee Culture.

That bee keeping may be made a valuable adjunct to the minor profit of a farm, no one, who has given the matter an intelligent and fair trial will, for a moment, doubt. Farmers who depended upon the old methods of box hives and brimstone killing, have abandoned the business in disgust. Others, who have studied the nature and habits of the bee and have kept abreast of the times by adopting the latest improvements and using common-sense appliances, have generally been favored with success. The unanimous opinion among the latter class is that no single feature of the farm will produce more ready cash for so small an outlay of capital and for the labor and time required than bee-culture.—[American Farmer.

The secret of producing enormous stems of asparagus, lies in the generous culture with plenty of room and plenty of manure, combined with good seed.

The New Provincial Treasurer.

Mr. James Young, member of the Local Legislature for the North Riding of Brant, has been called upon to fill the position of Provincial Treasurer, rendered vacant by the retirement of the Hon. S. C. Wood, and has accepted. Along with the duties of Treasurer, he will, like his predecessor, perform those of the Minister of Agriculture. He will also take charge of the Department of Immigration and the administration of the License System, which are now under Hon. Mr. Hardy.

The Dominion Exhibition will be held at St. John, N. B., on 2nd Oct.

The Industrial Exhibition will open at Toronto, Ont., from 11th to 22nd September.

The Globe Agricultural Company, of London, recently shipped two car loads of their celebrated self-binding harvesters to Ottawa. This speaks well for eastern farmers.

ENQUIRY.—Yes, I would strongly recommend you to have a Union Churn. Any merchant can procure you one from the manufacturers.

We understand that arrangements are almost completed for the formation of a joint stock company for the manufacture of plows in Ayr, on a large scale, in connection with one of the largest markets of plows in the United States. This new enterprise will be more especially for the Manitoba and Northwest trade. The increased duty placed on this class of goods makes it absolutely necessary that they should be manufactured in Canada, as American goods are virtually excluded, and the demand must be met. When we consider the fact that about a quarter of a million of dollars worth of plows were sent into Manitoba last season, by the American makers, and that they are now excluded, this enterprise is surely a grand opening for capitalists. We are informed that the Watson Manufacturing Co. will discontinue the plow branch of their business and throw all their influence and trade to the new company, thus very materially benefiting the new enterprise.

The offer made in this issue by Mayor Beatty, of Washington, N. J., is characteristic of the enterprise of this well-known manufacturer. He offers to you, a reader of our paper, one of his renowned latest style $95 organs for only $49.75, and delivers it free, all freight charges prepaid by him, at your very door. This offer must be accepted on or before 15 days after date of this paper; after that date the price will be $95; therefore d not hesitate, but order at once. Every instrument guaranteed or money will be refunded with interest. No manufacturer, it is stated, can show the amount of business transacted during the last four months that Mr. Beatty does. His shipments have been: December, 1,410 organs; January, 1,102 organs; February, 1,152 organs; March, 1,435 organs, besides some 543 pianofortes. His factory is taxed to its utmost capacity, running day and night. He has the largest and most complete factory in America; no one deserves success more than Mayor Beatty, for he understands and caters to every wish of the music-loving populace, and has his reward in the world-renowned reputation which his incomparable instruments have attained.—COM.

Additional Correspondence.

SIR—Can you tell me, in your next, about Silver Hull Buckwheat; if it is an improvement on the common, or Guinea Buckwheat; whether it is better than either, and also its prolificness and milling qualities. J. W. B., Waterford.

[The Silver Hull Buckwheat is a great improvement, and yields about half as much again as the common variety; its milling properties are also much superior. For bee culture it is very valuable and is extensively grown in the States for that purpose.]

Mr. McKee, of Nissouri P. O., writes that most of the wheat is plowed up in that section, and says, "We have had to plow up the whole of ours." A neighbor broke the ice on a portion of his wheat with an axe and the wheat came out first rate where the axe had been used, and now wishes he had used the axe wherever the ice was formed on his wheat.

"The Farmer's Advocate Prize" of $100

given annually by Wm. Weld, Editor and Proprietor of this paper, will be awarded at the next Provincial Exhibition, to be held at Guelph, Ont., from the 24th to the 29th of September, inclusive, for the best samples of wheat

The prize will be divided as follows: Two prizes of $30 and two of $20 each. The first prize of $30 to be given for the best variety of fall or winter wheat for the general farmer to raise, and $20 for the second best variety of fall or winter wheat; $30 for the best variety of spring wheat, and $20 for the second best variety of spring wheat.

RULES.

Two bushels or 120 pounds of the wheat to be exhibited. The name of the wheat, together with a written description, to be given, stating where the wheat was procured, how originated or introduced, as far as can be ascertained, a description of the soil and situation on which grown, what fertilizer used, and general history of cultivation. (The wheat must have been grown in the country for at least three years.) Also a report as to its milling and marketing qualities—a practical miller to be one of the judges.

The prizes will be given to four distinct varieties, and the descriptions and reports must be furnished to the Association before the bags are opened, the reports of all competitors to be the property of THE FARMER'S ADVOCATE. It is not necessary that the finest sample of wheat should in any way effect the award of the prize except that the wheat should be pure, clean and unmixed, the object being to decide the most valuable variety from actual yield and general qualities.

Improvement in Clydesdales.

When so many first-class Clydesdales of both sexes were being sold for exportation during the last few years, there were not wanting prophets who confidently foretold that the breeders were acting the short-sighted part of "selling the goose that lays the golden egg," and that the result would be seen in the deterioration of the race of draught horses in this country. Any one (says the *Dumfries Courier*) who attended the Ayr and Glasgow shows during the last fortnight, or who has had other opportunities of seeing the young horses in the hands of breeders, must be satisfied that, instead of these dark forebodings having been realised, there is steady and perceptible improvement going on in the breed of Clydesdale horses. Moreover, this is being accomplished in the face of the undoubted fact that a large proportion of the best sires have been sent abroad. The question then arises, How is the improvement to be accounted for, in spite of circumstances which might naturally be expected to lead to a totally different result. We attribute it mainly to the fact that far more attention is being paid to the mating of stallions and mares than was wont to be the case. Formerly the horse that was most convenient was employed, irrespective of the suitability of the union in respect either of the personal qualities of the two animals or of their ancestry. The consequence was that not infrequently animals were mated, both of which had the same weaknesses, and as a matter of course these same defects were transmitted in their offspring in such an intensified degree that it would prove a very difficult thing indeed to get quit of them in the subsequent generations, however skilfully and costly the means employed to do so. But of late the profit attending the breeding of the best class of Clydesdales has induced owners of good mares to incur the expense of sending them—often a considerable distance—to really high-class sires of a type suitable to their individual characteristics. The result is seen in the large numbers of splendid young colts and fillies that are being brought out at all the leading shows. Such discriminating action on the part of the few cannot but have the effect of leading the many to pay more heed to the science of mating animals of the farm than has hitherto been the case, and the best results may be expected therefrom, not only in horses, but also in all other varieties of our domesticated live stock.

If your horses are thin skinned and very much annoyed by flies when working or driving, steep up a handful of the wild wormwood or bitter weed, wet a cloth in it and just moisten the hair, especially on ears, neck and legs, before taking them out of the stable; or a few walnut leaves will have the same effect. It will make the animal more comfortable and much more pleasant to drive.

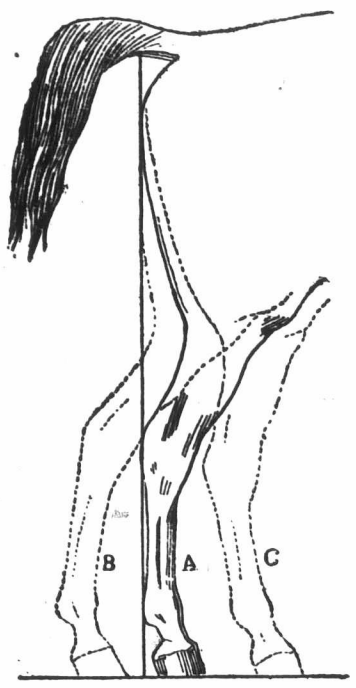
When grafting is done early in the season, especially on large trees, the probability is, as *The Massachusetts Ploughman* thinks, that the greater number of scions are misplaced by birds in their flight to and fro; some protection should therefore be afforded. There is, of course, less danger from this usually unrecognized source when the work is deferred, so that only a brief time intervenes before growth begins.

How to Select a Horse.

We select the following from a lecture recently delivered before the Agricultural Department of the Minnesota State University by Dr. E. A. A. Grange :

"A live horse was induced, after much persuasion, to enter the lecture room, and the lecturer illustrated the various points to be noticed in the purchase of a horse.

In examining horses for soundness, said he, it is necessary to proceed in a systematic manner. His own method was to begin upon the left side of the animal, and usually with the front, at the left nostril, dilating it and looking at the inside for the rose pink color, which is the healthy condition. If the animal is suffering from any catarrhal affection you will observe that the nostril is inflamed. Then you examine the red membranes to see if they are free from ulcerated spots. If there is any doubt whether the animal is suffering from glanders, by holding a lighted candle you can see a considerable distance up. Then after examining



this thoroughly, open the mouth and look at the tongue, to see if it is there and in perfect condition. Then pass the hand down on the lower jaw and examine it to see that there no tumors in the back part—tumors there indicate glanders and a disease called distemper, which is quite common amongst horses.

NEXT EXAMINE

the left eye, to observe whether the pupil responds with action of light, and if it does, it is healthy. To determine that you place a hat or something of that description over the eye and the pupil will dilate, and after its removal the action of light will cause the pupil to contract. Then the eye should present a clear appearance. If it has a cloudy or hazy appearance, with a scum over it, it is not in a healthy condition. It will also be observed of an eye in an unhealthy condition that there is generally weeping or flow of tears over the side of the face. You must examine the poll to see if the poll evil exists. The jugular vein should also be examined to see whether it exists, because from careless treatment, from irritating the vein, and careless bleeding, it becomes inflamed, and after the process of inflammation has run its course it becomes obliterated and the blood is carried back from the head by the smaller veins. When this vein becomes obliterated, if you turn the horse out to pasture the head will swell up. Then you pass the hand along the back toward the tail, examining, on the way, the withers for the fistula, a disease similar to poll evil, a running sore, very troublesome in its nature ; examining also along the spine for collar galls.

Then, in proceeding to examine the fore leg, first of all you examine the shoulder for sweeny, which is a wasting of the muscles of the shoulder. If the wasting has proceeded to any very considerable degree

THE ACTION OF THE SHOULDER

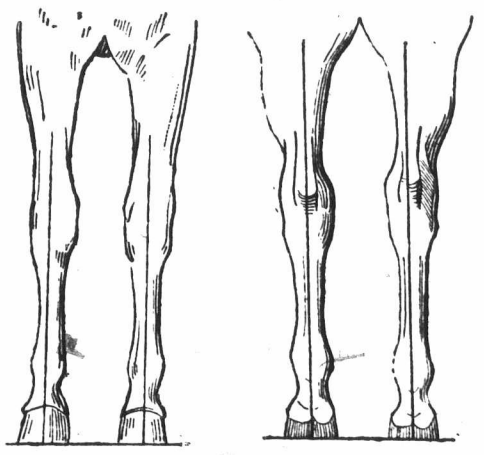
is plainly visible, and it is often thought by casual observers that the shoulder is out of joint. After examining the shoulder, examine the elbow to see if the condition called capped elbow exists. It does not interfere with the horse's usefulness, but looks ugly. Then pass the hand down in front of the leg. If white hairs are found upon the knee, that indicates that the animal has been down some time or other, and is perhaps a stumbler. Passing the hand down, examine with the fingers the inside of the leg for splint. Then examine the fetlock for ringbone, comparing both feet if there is any doubt about its existence. There are two flexible plates of cartilage around the heels, which sometimes become diseased, in a condition called sidebone, which must not be confused with ringbone, one being a disease of the bone, the other of the cartilage If they plates are flexible they are in a healthy condition. The hoof should next be examied for sand-crack ; the bottom portion of it, in cleft of the frog, for thrush. Thrush is a disease of the sensitive structure above. Then it is well to take a look at the limb from shoulder to foot to see if the joints are in their natural position, and that the animal does not stand over either at the knee or at the fetlock. Having done so you turn your back to the animal's head and examine the back tendons of the leg. On a well-bred animal they show almost as plainly as if the skin was removed. Then feel to see if the outlines are smooth, and that there are no lumps upon them. Lumps upon them would indicate sprain at some previous time. After examining the fore leg in this manner, pass the hand over the chest, the part from the shoulder back to the end of the ribs. Then examine the abdominal cavity to see if a rupture exists. So far as

THE GENERAL USEFULNESS

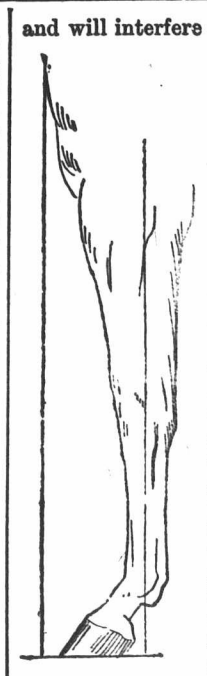
of the animal is concerned, rupture, unless it is a very large one, does not interfere with their everyday work. Still it is not advisable to buy a ruptured animal. Then get an assistant to take up the fore leg, holding it by the toe. The object of this is to throw the weight of the body so that it stands firmly upon its hind legs. Then examine the hind leg, passing the hand down until you come to the point of the hock, examine there for capped hock, which, although it does not interfere with the usefulness of the animal, yet it indicates a kicker. Look also for curb, which is a sprain of the short ligament which passes down from the hock, say four or five inches, and for bog spavin. Bog spavin seldom does any harm, but in an animal required for road purposes the disease is often serious and troublesome. Then examine for bone spavin toward the inside at the front of the hock. Stand about three feet from the shoulder and look from the inside of the hock down, and if the line is ordinarily straight, it is not likely to exist. You then pass the hand down the front of the hind leg and carefully examine for the ringbone, the front leg being up all the time. Side bones do not occur in the hind leg. Examine also for thrush and sand crack. Having made an examination of the left, you proceed to the front and examine the right side in exactly the same manner. Then stand behind the horse a few yards, and make an examination of the hindquarters and see whether it is hipped, so that the hip on one side is less than it is on the other side, and the animal is said to be

DOWN IN THE HIP.

In gray horses it is advisable to make a careful examination of the urino-genital organs. There is a very troublesome disease peculiar to these ani-



mals, consisting of a tumor, sometimes of a considerable extent, a collection of thin mucous-like substances in which is the coloring matter of the skin. These tumors do not necessarily interfere with the usefulness of the animal, but they are unsightly and will interfere with the sale. Having then examined these parts, a look over should be carefully taken to see if anything has been passed over.



Next test the animal's wind. It is well to let the animal have a little hay. In some cases of heaves there are various substances which are given to allay the symptoms temporarily. When the bowels are empty the heaves are scarcely noticed. A pail of water or three or four pounds of hay should be given. Then you examine the larynx, or organ of the voice. Sometimes the larynx does not open and shut as required when the animal is unhealthy, and the air goes through with a roaring and whistling sound. After testing its breathing apparatus, it is well to throw a little hay upon the ground, in order to see whether the lips are round. Sometimes they are paralyzed, and the animal cannot gather its hay properly.

The accompanying engravings show the different natural positions of the legs of a model shaped horse. The straight lines indicate the true positions of the joints. By reference to these an ordinary observer will be able to judge, with a considerable degree of accuracy, what an animal should be.

Farming for Boys.

BY THE AUTHOR OF TEN ACRES ENOUGH.

CHAPTER XIII.

How the Pets succeeded.—Going to the Fair.—A Young Horse Race.—Trying for a Premium.

It must not be supposed that, during all this period, from spring to fall, the boys had neglected giving their pigs and pigeons whatever care they needed. The pigeons had long been released from their prison in the loft, and now went and came as they pleased. They flew away over the farm, picking up the seeds of weeds, and, so far as could be discovered, were doing no injury to the crops. Not one of the neighbors had complained of them. Even Farmer Spangler could find no fault, though he had so stubbornly resisted their introduction on the premises. On the contrary, he began to think they were very convenient things to have about ; for as they had hatched out and reared several pairs of squabs, Uncle Benny had been shrewd enough to have the boys present a couple of them to Mrs. Spangler, who served them up in a pie for her husband's dinner.

This little stroke of the old man had a prodigious effect on Spangler's opinions as to the value of pigeons on a farm, as many of his seemed to be formed in his stomach instead of in his brain. Moreover, he was particnlarly fond of pot-pie. Uncle Benny being aware of this weakness, and knowing also that the most direct way to a man's good opinion is in the direction of his stomach, he thought the offering of one or two pairs of squabs on the altar of Spangler's appetite would be about the cheapest form of conciliation he could adopt. But Uncle Benny is not the first person who has discovered the power of a good dinner in carrying a favorite point.

The boys kept their pigeon-loft as clean as possible, and stored up a considerable quantity of manure that was almost equal to guano. The floor was constantly supplied with gravel, lumps of clay, or common soil, and salt. These were not needed for the older birds, which ranged over the farm, as they could find all such materials for themselves, except the salt. But such articles are indispensable to the health of a pigeon, hence it is better to provide them where they can be handy. In a pigeon-loft there are always some young birds called *squeakers*. These are such as have outgrown the condition of *squabs*, and, having all their feathers, have left the nest to run about the loft, without as yet having courage enough to use their wings out of doors. Such must be carefully looked after until able to fly out and shift for themselves.

So far the boys found it the easiest thing in the world to raise pigeons, as the rearing of the young gave them no trouble. Plenty to eat and drink,

with constant cleanliness, was all that was needed. At six months old the new broods began to go in pairs, each laying a couple of eggs. In eighteen days after the laying of the second egg, the young were hatched. Thus their flock went on increasing, until it made a very respectable show when its members came down from their perches to take part in several distributions of corn among the poultry; but they would have to wait another year before having any to sell.

It was not quite so encouraging with Nancy and the pigs. The whole brood, excepting three that died, increased prodigiously in size, as they were well taken care of, Bill continuing to curry them daily. To perform this now extensive duty more easily, he mounted an old curry-comb on the end of a long stick; and, taking both hands to it, he was able to do a great amount of currying in a very short time. It was laughable to witness the movements of the pigs the moment Bill showed himself and his currying-stick alongside of the pen. They ran, grunting, to where he stood, lay down on their sides, and waited patiently for him to begin operations. It was much easier to tire out Bill than it was to tire out them, for they never had too much of it. Every one who saw the pigs, even their neighbors the Allens, declared they had never seen such silken-coated animals as these, all occasioned by clean keep and regular currying. Uncle Benny one day told the boys that, if Bill continued to push them forward at that rate, he didn't know but he should think of taking them to the county fair, and enter them as candidates for the premium.

But the pen in which the boys had begun this operation of pig-raising was now found to be too small. So, as they had considerable money laid by from the blackberries, Uncle Benny told them they must use a portion of it in putting up a new pen. It was partly for this purpose that he had urged them to save it. It is true that he had given way to their importunities so far as to buy something for each,—one wanted a cap, another a whip, and the third would have a parcel of books. He insisted on being the general cash-keeper, but required each one to have a regular account of how much he was entitled to, and how it was laid out. Thus, in addition to teaching them the importance of economy, he taught them the first lessons in book-keeping.

A quantity of boards being purchased, the boys quickly constructed a new and much larger pen. The old man had consented to their joining funds and buying a very complete set of tools; and, by help of these and his instructions, they succeeded in getting up as handsome a pen as any of the neighboring farmers could boast of, even before it had been well whitewashed. There was a covered sleeping-place provided, so that in wet weather the pigs could keep themselves dry; and a door, through which Bill could get in without climbing over the fence. Then the old hogshead was removed, the ugly patchwork fence taken down, and a thorough clearing up made of the ground. This resulted in a great collection of manure, which was added to a very respectable pile from the same prolific manufactory.

"Nothing like pigs!" exclaimed Uncle Benny to the boys, as he surveyed the huge compost heap. "They earn their living without knowing it. I must have some of this on our blackberries,—at least one row must be supplied with it, just to show you the difference between high culture and only half culture."

It turned out that Uncle Benny's remark about taking some of the pigs to the fair had some meaning in it, for he now made up his mind that he would do so. He looked over the printed list of premiums for different animals, and found that whoever would exhibit the four best pigs of a certain age should have a premium of three dollars. Now, the amount was very small, and really not worth the trouble and cost of taking four pigs some ten miles to the fair, even if one succeeded in securing it. But the old man explained to the boys that there would be a great deal of honor gained by taking the premium. That was worth much more than the money. Besides, a premium animal always attracted great notice from those who attended, and it generally sold at a high price. Many persons went to such gatherings on purpose to buy fine animals; and, even if they failed in securing the premium, they still might get a good price for the pigs.

Well, as it had been already determined that the boys should go that fall to the fair, it was resolved to compete for the premium. So the four best pigs were put in a pen by themselves, and then began a course of high feeding that had never been practised on Spangler's farm. Uncle Benny bought from a butcher, about once a week, a barrelful of bones having considerable meat left on them, sheeps' heads and cows' heels, with now and then a pluck; and, in fact, whatever offal the butcher made. These he had boiled up into soup, with a sprinkling of corn-meal and mill-feed, and served it out warm, three times a day; giving just as much as the pigs wanted, but no more. It was amazing what an effect this meat-soup diet produced. The pigs grew so rapidly as to confound Farmer Spangler, who had always been a poor sort of provider. They became fairly round with fat; and, when the proper time arrived, they were put into a wagon and taken to the fair, where the committee placed them in a pen by themselves, with this label, written in large letters, directly in front:

CHESTER-COUNTY WHITES.

FOUR PIGS FROM THE SAME LITTER,—FIVE MONTHS OLD. RAISED BY JOSEPH AND WILLIAM SPANGLER, AND ANTHONY KING.

When thus disposed of, Uncle Benny and the boys strolled leisurely around the enclosure to see what other folks had brought. They naturally looked into the pig department first, but could find nothing that came anywhere up to theirs, though a large number had been entered for the prize. Uncle Benny declared that he began to think there might be a chance for getting it. Then they wandered all over the grounds, examining the multitude of animals, of implements, vegetables, fruits, and other useful and ornamental things that were on exhibition. Uncle Benny pointed out to them the useful novelties, as well as the improved agricultural implements, and explained how they operated, and why they were better than those they had at home.

The older boys were deeply interested in all they saw; but Bill Spangler broke away every half-hour, to run off and see the pigs. Every time he came back he reported to Uncle Benny that there was a considerable crowd gathered round the pen, some of whom were inquiring were Mr. Spangler and Mr. King could be found. These repeated announcements excited even Uncle Benny's curiosity; so he gradually edged round toward the pen, and, sure enough, there was a real crowd of people admiring the pigs! In the centre of the group he observed two or three fussy, important-looking men, with paper and pencil in their hands. These were the judges, who were then going the rounds of the fair to decide as to who were to have the different premiums, but that important announcement would not be made until the next morning.

In the course of their wanderings over the fair grounds they came suddenly to a great open space,—a huge circle, surrounded by a low fence. On the outside of this fence an immense number of men and women were collected, all crowding upon each other to get a view of at least a dozen persons, in light sulkies, who were trotting horses at the top of their speed around the circle. It was a fine gravel road, made expressly for fast driving.

The boys looked on with the utmost enjoyment. They had never seen such fast driving before, except when a horse was running away. Then they were in continual fear lest one sulky would run into another and cause a smash-up, they came so near together. Every now and then there was a shout and a hurrah from the spectators; and at the same time the women waved their handkerchiefs as if somebody had done something wonderful. Bill Spangler suddenly turned round to the old man, and inquired,—

"Why, Uncle Benny, ain't this a horse-race?"

"Well," replied Uncle Benny, "this is what the society calls a 'trial of speed.' Don't call it a horse-race, or some of the managers might hear you. I know these fairs would be dull things if no fast horses were to be exhibited, and I am afraid they are becoming mere excuses for horse-racing. But everybody seems to expect it. Look at the number of people who stand round this fence, gaping for hours together at nothing more than a parcel of horses, driven as fast as they can be made to go. At least one half of the spectators are women; and, taken all together, there are three times as many people now round this fence, enjoying the races, as there are on the rest of the ground. I think the managers should change the name of their shows, and call them the aunual county horse-race."

But the boys soon tired of a display that had so little to interest them; and, as it was now drawing toward sundown, they turned away, and started for home. It had been a somewhat tiresome day, as well as very hot and dusty, as fair-days generally are. Still, they had enjoyed it greatly, as boys, when bent on pleasure, do not seem to care whether it rains or snows, or whether the day be fair or hot or dusty,—all is about the same to them.

The next morning they returned, and found a crowd even greater than on the preceding day. The first place they visited was the pig department; for, as their treasures were there, so did their hearts yearn toward it. As they approached the pen where their pets had been deposited they found quite a number of persons gathered in front of it, some of whom were reading a paper which had been stuck on the post, and which read thus:

FIRST PREMIUM,—CHESTER WHITES.

The boys hardly knew what to make of it, but Uncle Benny explained to them that they had really taken the first premium. Their surprise and gratification knew no bounds, while Uncle Benny himself did not fail to experience a degree of pleasure which fully rewarded him for all the care and trouble he had given to the undertaking from the beginning.

"Where is Mr. Spangler, the owner of these pigs?" inquired a well-dressed gentleman in the crowd. "I want to see him."

"Here he is," replied Uncle Benny, taking Bill Spangler by the arm, and bringing him forward, very much to his confusion.

"What, my lad, did you raise these fine pigs?" inquired the gentleman.

"Well, I helped to, sir," replied Bill.

"I want to buy them, and will give you ten dollars apiece," added the gentleman.

Bill was more confused than ever, and turned to Uncle Benny for relief, as the other boys had nothing to say, none of them being used to making bargains.

"You can have them, sir," replied Uncle Benny.

"And cheap enough, my boys," added a voice in the crowd, which they recognized as that of their neighbor, Mr. Allen. "You deserve great praise for what you have done. I never saw finer pigs in my life. Do equally well another year, and you will get your names up."

The gentleman counted out forty dollars into Uncle Benny's hand, which he folded up, and put into his pocket. But if the taking of the premium had surprised the boys, the getting of so large a price really astonished them. But the old man afterwards explained to them that anything on which a great amount of care had been bestowed was generally sure to bring with it a good reward. He had no doubt it would be so with their cornfield, their blackberry patch, and, in fact, with everything else to which they might devote their utmost care and attention. It was the painstaking boy or girl who went ahead, while the lazy and slattern fell behind.

When the party reached home, and told Farmer Spangler that their pigs had taken the prize, and been sold for forty dollars, he was even more astonished than themselves. Uncle Benny was afterwards satisfied that from that very day he could see a change in Spangler's conduct and disposition. The success of the boys had been so decided that he could not help acknowledging it, and on every proper occasion showed a much greater willingness to take the old man's advice as to how things ought to be done on the farm.

But this was not the end of these surprises. The next day several persons called at Farmer Spangler's to buy pigs. They had seen the four prize ones at the fair, and wanted to have the same breed. So it continued for a week or two,—people were continually coming who wanted to buy. The whole stock could have been disposed of, even Nancy herself, but Uncle Benny declined selling. He told the boys that, now their name was up, they must go in for raising more.

(To be continued.)

Old Si was asked by one of our merchants—"Si, do you know a darky by the name of Davis?" "Sissero Davis wid de red eye dat got burned in de powder sploshin'?" "Yes, he's the man." "Well, I kno's him." "Is he reliable?" Gin'ull, but it 'pends moughty on de business dat he's gaged in at de time!" "What business would he suit best in as a porter?" "Well, ter tell ye de flat-fooded, unsophisticated trufe, dar's one place whar dat niggar cou'd wuck an' be ez hones' ez de day—an' dat's ez porter in er real 'state sto'! In dat case de o'ner 'ud be liable ter fine de propurty allus jess whar he lef' hit!" The gentleman named Davis was not engaged.—[Georgia Major.

The Household.

Milk as a Curative Agent.

BY A FAMILY DOCTOR.

"Milk as a Medicine" was the title first thought of for this paper, and it must be confessed the words sound better than those I have chosen; they have, at all events, the magic power of alliteration to recommend them. But, on the other hand, there are many to whom the very word "medicine" brings disagreeable associations, though it ought to be remembered that a medicine is not necessarily a drug, albeit a drug ought always to be a medicine. A medicine—if I may be allowed to quote from the first dictionary I can lay my hands upon, without the trouble of getting out of my chair—is "any substance which has the property of curing or mitigating disease." In this sense milk is assuredly a medicine, just as many of our vegetables are, which, whether through innate taste, or depending upon our knowledge of their properties, we partake of as health preservatives.

Regarded as a food for the young, milk contains all the elements necessary for existence; the child and the invalid are in many things very much on a par, and milk almost alone, when judiciously administered and in cases where it can be well borne, oftentimes enables a delicate patient to tide over an evil time, and to support his system until stronger food, suitable for the requirements of health, can be easily assimilated.

The milk most commonly used medicinally is that of the cow, although the milk of several other animals is pressed, and rightly too, into the service of the invalid. Let us see what pure milk contains. Of course the propositions of the several ingredients that enter into its composition vary somewhat in different specimens of even pure milk, but the following table of Regnault gives as close an approximation to a perfect analysis as we require for our present purpose. He takes the milk of the cow, the ass, and the goat, and analyzes them as follows:

	Cow.	Ass.	Goat.
Water	87·4	90·5	82·0
Oil, *i. e.*, butter	4·0	1·4	4·5
Lactine and soluble salts	5·0	6·4	4·5
Casein, albumen and fixed salts	3·6	1·7	9·0
	100·0	100·0	100·0

We may now say a word or two about some of the ingredients of milk.

The oil or butter. Fat in some form or other must be taken to support life by keeping up the animal heat; sugar or starch, the farinaceous portion of the food, is also heat-sustaining. Heat is power, power means strength; wherever, therefore, there is a lowering of the animal heat, there must be a diminution of strength, and consequently health retrogression. Fat or butter possesses twice the heat-generating properties of sugar or starch. The value of milk, then, as an article of diet to the delicate or the invalid must be great. There are many people, moreover, who, although they are not looked upon as invalids, nevertheless suffer from feelings of chilliness and cold, often without apparent cause. It may be simply coldness of the feet and hands, but at times the chest and stomach partake of the same uncomfortable feeling. Rich, good milk, if it can be assimilated, is a great boon to such as these. Indeed, it is often the best medicine they can take, better far than the so-called cordials they so often fly to.

The *lactine* is the sugary or sweet portion of the milk. Like other saccharine substances, lactine or milk-sugar is a heat-producer, and acts in several other ways for good on the animal system.

The *salts* or mineral matter contained in milk are all necessary for the maintenance of the body in a state of health, and for assisting to build up its frame-work and make up for loss or waste in nervous and muscular tissue. They consist chiefly of the phosphates of lime, soda, magnesia and potash, with the chloride of sodium (*i. e.*, common salt).

The *casein* that milk contains, and of which the curd is principally formed, with the *albumen*, is a very important portion of its composition, being chiefly concerned in the animal economy with the repair of tissue and in its construction, and generally in keeping up the strength. In other words, it is the nitrogenous portion of the milk which gives staying power to the man in health, and enables the delicate invalid to take exercise without feeling fatigued. The muscles and nerves are to the human body what the wires and other conducting apparatus are to electrical machines—not the essential perhaps, but things, nevertheless, that cannot well be dispensed with, in this world at all events. Casein is the least easily digested portion of the milk. Cheese, we all know probably from experience, is difficult of digestion, unless indeed one is working all day out of doors.

A Revolution in Carving.

NEW METHODS AND THEIR ADVANTAGES—THE EDUCATION OF A CARVER.

Speaking about carving, there is a prospect now that in our best circles, within a short time, the old custom of making the host demolish the kiln-dried poultry at dinner will be extinct, and that a servant at a side-board will take a hand saw and a can of nitro-glycerine and shatter the remains, thus giving the host a chance to chat with his guests instead of spattering them with dressing, and casting gloom and gravy over the company.

This is a move for which I have long contended. It places the manual labor of a dinner where it belongs, and relieves a man who should give his whole attention to the entertainment of his friends at the table. You would not expect your host to take off his coat and kill the fowl in your presence, in order to show you that it was all on the square, and it is not customary to require the proprietor to peel the potatoes at the table for his guests, to prove that there is no set-up job about it.

Therefore I claim that the lamented hen may be thoroughly shattered at a side table by an athlete at $4 per week, and still good faith toward the host be maintained. If anyone be doubtful or suspicious, etiquette will permit him to stand beside the hireling carver and witness the inquest. Still it would be better fun for him to sit at the table, and if the part given him is not satisfactory, he can put it in his over-shoe *pro tem.*, and casually throw it out the back door while the other guests are listening to the "Maiden's Prayer" in the parlor.

Under the new deal the host will enjoy the dinner much more than he used to with his thumb cut off and a quart of dressing in his lap. No man feels perfectly at home if he has to wrap up his finger in a rag and then scoop a handful of dressing out of his vest pocket. Few men are cool enough to do this, laughing heartily all the time and telling some mirth provoking anecdote meanwhile.

It is also annoying to have twenty guests to ask for the "dark meat, please," when there are only three animals cooked, and neither one of them had a particle of meat about her person. Lately I have adopted a plan of segregating the fowls by main strength, using the fingers when necessary, and then wiping them in a off hand manner on the table cloth. Then I ask the servant to bring in that dark hen when ordered, so that we might have an abundance of dark meat. If there is none, I smile and tell the guests that the brunette chicken, by some over-sight, has been eaten in the kitchen, and I shall have to give them such relics as may be at hand. This simplifies the matter and places me in a far more agreeable place relative to the company. My great success, however, in carving is mainly confined to the watermelon. The watermelon does not confuse me. I always know where to find the joints, and those who do not like the inside of the melon can have the outside. Now, my great trouble with fowls is, that one day I have Nebraska chicken, and the next day I have to assassinate a Mormon Shanghai pullet, with high, expressive hip bones and amalgam paletot. This makes me nervous, because they are so dissimilar and their joints in different places. The Mormon hen is round shouldered and her collar bone is more on the bias than the Nebraska fowl. This gives a totally different expression to her features in death, and, as I have said, destroys the symmetry of the carve.

I began my education in this line by carving butter in hot weather, and gradually led up to the quail on toast. In carving the quail, first mortgage your home and get the quail. The quail should be cooked before carving, but not before the chronometer balance and other organs have been removed. Place your quail on toast in a sitting position, then passing the dissecting knife down between the shoulder blades, dissect the polonaise.

Another method is to take the quail by the hind leg and eat it, asking the guests to do the same. This breaks up the feeling of stiffness that is apt to prevail at a formal dinner party, and while each one has his or her nose immersed in quail, good feeling cannot fail to show itself.

Family Circle.

A NIGHT OF ADVENTURE.

It was a hot, weary morning at the far end of the London season. There were not very many carriages left in the Park or the streets; yet Zoe Conington, one of the greatest beauties in society, was driving down dusty Oxford St. And she was crying, quietly, beneath the parasol, which she held well over her eyes. Presently the carriage turned up one of the substantial side streets, and stopped in front of a very neat and prosperous-looking house. The door was painted a dark green, and on it was a brass plate, bearing this inscription: "Mr. Edgar's Home for Trained Nurses." Mrs. Conington quickly left her carriage, rang the bell at the door, and was immediately admitted. She was shown into the "office," where she found Mr. Edgar and his Lady Superintendent, both apparently very busy at large writing-tables.

"I want a nurse, Mr. Edgar," said Zoe Conington, rather helplessly. She knew her eyes were red, and she did not like the feeling.

"Certainly," said Mr. Edgar; "what sort of case?"

"It is for my sister," said Zoe. "I really don't understand what's the matter. They say she has what they call anæmia, and the doctor who attends her fears she will not live long. I believe he is an old fogey, and does not understand the case."

"Then you want a nurse of experience?" said Mr. Edgar.

"Exactly," said Zoe, eagerly; "and I should be so glad if I could have one that is ladylike as well—not a common hospital nurse. You see my sister is quite alone, without any lady friend; and I can't go to her because her husband doesn't like me."

"Nurse Harcourt," said Mr. Edgar to the Lady Superintendent, who nodded and rang a bell. "She is exactly what you want," he added, turning to Zoe. "She is an experienced and clever nurse, and she is a lady. We don't have many like her. She belongs to a good family. I feel sure you will like her. Come in. Miss Harcourt," as the nurse thus named entered. "This lady wants you to go to her sister."

"What is the case, sir?" said Nurse Harcourt.

"It is said to be anæmia."

"I can undertake that, I think, sir."

"Of course you can," put in the Lady Superintendent.

Zoe had quickly taken in the girl's appearance. She was slender, active, with an intelligent and interesting face. Her features were not good, yet there was a charm of color about her. She had large and very dark eyes, and strong dark eyebrows; while her thick hair, cut quite short, was all bright with warm gold and red. This certainly was not Zoe's idea of a "common hospital nurse."

"I don't know whether I ought to say so," said she to the nurse, "but I don't think the doctor understands the case. Have you often nursed anæmia?"

"Yes; in the hospital," said Nurse Harcourt; "and I have had cases since in which it was present. I don't think I should be easily deceived in it."

"Then you must have my address," said Zoe; "and write or telegraph to me direct, as you think fit. If there is any mistake being made in the treatment, I will send down a physician at once. Will you undertake this?"

"Yes," said Nurse Harcourt with a quick, bright smile; "I think I can undertake that. Shall I get ready, sir?"

"What station?" asked Mr. Edgar, armed with an "A. B. C." and a magnificent glass.

"Lostayvil," said Zoe, "somewhere near Penzance—a wretched little river fishing-place. People ought not to go so far away from everybody. Is there any chance of her getting there to-night?"

"Lostayvil—oh, yes; she can get there at 10. The train starts in half an hour. She must have some sandwiches made up to take with her," he said to the Lady Superintendent, who rose and hurried away, pen in hand, to give orders.

Mrs. Conington drove to a telegraph office, and sent a "wire" to her brother-in-law: "From Zoe Conington, Hyde Park Gate, to Edward Mertoun, The Old Hall, Lostayvil. Your account of Agatha has alarmed me exceedingly. I am sending her a nurse, as I think it may be a comfort. She will arrive at the Lostayvil Station about 10. If you cannot send for her she will find some conveyance."

Nurse Harcourt, dressed all in gray, and with a gray veil over her bright hair and clever face, caught the express, and took her seat without any fuss or excitement, although she had only half an hour to get ready and reach the station in. When she arrived at Lostayvil it was a clear, sweet night; the station seemed to stand alone on a fragrant and indistinct desert, with no sign of any houses near.

"Is there anything come to fetch me from the Old Hall?" asked she, in her clear, determined young voice.

"Nothing at all, miss," said the solitary porter; and then, after a second's pause, during which he shouldered her box, "so I suppose ye'll go to the hotel."

"No, indeed," said Ada, who immediately suspected him of being in the pay of that same hotel. "I must go to the Old Hall to-night. I suppose I can get something to drive in?"

"There's post-horses at the hotel," said the porter, dubiously.

"Take me there, then," said Ada. It seemed to her that she walked about a mile and a half over a lonely road. At last they arrived at an inn entrance round which there were some signs of sleepy village life. After a stern interview with the dull landlord, Ada succeeded in getting him to have out a "po'shay" and two horses for her. A driver was extracted from the bar where he was drinking; he came out surly, and, getting on the box after Ada and her luggage had been waiting some time in the "shay," began to whip the horses. This amusement he continued to indulge in until they arrived at the "Old Hall," taking the horses, at a rapid gallop, up hill and down dale.

The Old Hall stood high, with a wide lawn about it, dotted by clumps of fine trees. On the way Ada was charmed by the winding silver stream and the wooded hills about it. All was very lovely; yet something in the aspect of the Old Hall made her shiver as she approached it. It was very dark; only one window seemed dimly lit; the front door appeared to be hermetically sealed. But Ada courageously rang and knocked, and while she waited for an answer, filled up the time by paying her surly driver the fabulous sum he demanded of her. At last the door moved; it opened slowly, and on the steps stood a tall man.

"Are you the nurse?" he said.

"Yes," answered Ada.

"I didn't suppose you could get here to-night. Well come in."

The coachman whipped up his horses in the familiar style and rattled away. A servant who looked like a groom came out and lifted Ada's box into the hall. A lamp stood on a table there, and by its light Ada tried to discover what sort of a house she was in. She was standing in a big, old-fashioned hall or house-place. Opposite her, his hands deeply buried in his pocket, stood the man who was evidently master.

"I told the maid to get a room ready for you," he said. "The man shall light you up there, and you can see my wife in the morning. Shall he bring you some supper?"

"If you please," said Ada. "First I'll take off my hat, and if you will allow me I'll go to the patient at once."

"Nonsense!" said Mr. Mertoun; "you must sleep after a journey."

"But it is my duty to see her first, if you please, sir."

Ada followed the man-servant upstairs to a little bedroom, where he left her, saying he would bring her some supper. She washed her hands and combed out her bright hair. When he came back she said: "Shall I find Mr. Mertoun downstairs?"

"He's gone to his own room," said the groom; "and he says missus is asleep, and not to be disturbed."

"Which is her room?" asked Ada. "I must know, because I've come down to nurse her."

"I'll show you the door," said the man. He led her a little way along a corridor, and pointed up a short staircase. "The door on the left," he said, and immediately hurried off, carrying his light with him.

"This is a queer house," thought Ada. However, she found her way back to her own room by the glimmer of light from its doorway. Then, taking her candle, she went straight to the door of the room the man had shown her. She knocked gently; there was no answer. So she quietly turned the handle and looked in. A solitary candle lit a large room; she could but dimly perceive that on the bed lay a woman who, seeing her, started up as if in terror, and then fell helplessly back again. Evidently this was the sick-room. Ada shut the door, put down her candle, and approached the bed.

"Don't be frightened," she said; "I am a nurse your sister has sent down to take care of you."

"I thought you were a spirit," said Agatha Mertoun; "I have had strange visions to-day." Then she relapsed into a silence, and seemed to forget Ada's presence. After awhile she spoke again. "I am dying," she said.

Ada went close to her and looked into her eyes. They were very strange. Suddenly the unhappy woman was seized with a violent sickness. Ada, with her quick wits, noticed some things which made her wonder. When her patient, weary and exhausted, lay back again on her pillow, she began to make a tour of the room. There were a great many bottles in different places. She took out all corks and smelled at the contents. Suddenly, while thus engaged, she happened to look toward the bed, and met Agatha's eyes fixed on her with a gaze full of some extraordinary meaning or intelligence. It almost frightened even the brave Ada. She put down the bottle quickly and went to the bedside. But Agatha had closed her eyes, as if too weak to keep them open. Looking earnestly at her, Nurse Harcourt realized how wonderfully lovely she was, in spite of the deadly pallor which lay on her face. Suddenly the sickness came again; and then a violent spasm.

"This is a queer sort of anæmia," said Ada to herself; and, after a long look at her patient, began to smell at the physic bottles. Just then she heard a faint sound at the door. Hastily approaching it, and opening it, she saw Mr. Mertoun disappearing through the opposite door. "He wanted to watch me," she thought. "Now, what can this mean?" She locked the door inside, and continued her investigations. Suddenly she came upon a bottle inside a cupboard, nearly empty, the smell from which almost made her cry out. But she remembered her patient and refrained. She merely put the bottle into her pocket, and then, without hunting about any more, went back to watch poor Agatha. The color of her face grew steadily worse, and her weakness was rapidly increasing.

"What on earth am I to do!" exclaimed Nurse Harcourt at last, "in this out-of-the-way place? I can't see her die before my eyes. If I could only get the doctor!"

She had spoken out loud, thinking Agatha quite unconscious. But she was not. She opened her eyes and appeared to express something by their earnest gaze. It seemed as if she understood Ada's words.

"It's the only thing to be done, I believe," said Ada to herself; "and I'll do it." She took out her watch and looked at it—half-past three. Going to the window, she drew the curtain a little aside. There was a faint gray haze all over the world; but the light would be enough to find one's way by, and every moment brought the dawn nearer. "If I did but know the way," she thought. "Well, I must wake up some one and ask it."

Having made up her mind, she no longer hesitated. She took a final survey of her patient and then left the room. She locked the door on the outside, and took the key with her. Quickly entering her own room, she caught up her gray cloak and travelling hat, and put them on as she hurried down stairs. "If I only knew where the servants sleep!" she thought; "but I'm so afraid of rousing Mr. Mertoun. I'll wake up some cottage people."

With some considerable difficulty she opened the front door, and then drew it close behind her without absolutely shutting it. To her delight she found it would stay so without moving; this would enable her to enter the house again quietly. As quickly as swift feet would carry her she hurried out of the grounds. She saw no cottages; so she went on along the widest road, hoping to reach some habitation in time. To her delight she saw at last a hedger and ditcher trudging away to his work. She ran after him, and, almost breathless with her quick movement and excitement, caught him by the arm while she asked him her question.

"The doctor?" he replied. "Right on till the cross roads, then to the right; not more'n a mile."

Not more than a mile! Nurse Harcourt started off on her way gleefully. That soon would be accomplished, she thought Had she but known how strange is the Cornish mind on the subject of distances she might have stayed to ask further information. But, instead she hurried away, leaving the working-man to stare after her in complete and bewildered amazement. The cross roads were reached before long, and then she turned to the right, and hurried quickly along the lonely road.

At last Ada began to reflect on the fact that she must have walked a great deal more than a mile since her meeting with the hedger and ditcher. In fact she was beginning to feel a little puzzled and hopeless, for there was no sign of houses Still she hurried on, hoping to meet some one else who would direct her. Suddenly on her ear fell the sound of laughter—high, clear, hearty laughter. Odd, at this time in the morning; but, nevertheless, the sound encouraged her. It came again and again, and guided her footsteps out of the high road into a wonderfully quiet lane. The laughter still went on ahead, like a mocking spirit, as a will-o'-the-wisp. But suddenly Ada found herself close to a little cottage, every window of which was brilliantly illuminated from within. The lower windows reached to the ground and stood open, exhibiting all the signs of a late revel. Empty decanters and bottles, innumerable glasses, some packs of cards on the floor—these things caught Ada's quick eye and made her wonder; while leaning on the gate of the cottage was an extremely handsome young man dressed in white flannels. He looked at Ada with the steady gaze of astonishment. He was immensely surprised at the sight of a young lady in gray, with an extremely charming face, taking a walk at four o'clock on a misty morning. Without a second's hesitation she approached him.

"Can you tell me where I can find the doctor's house?" she said, "a man I met told me to come this way."

Her earnest tone seemed to rouse him and make him understand that she was out on business.

"Dr. Frere is the nearest resident doctor," he said, "and he lives about six miles off, over there," pointing the way Ada had come. "But if there's anything I can do, let me help you. I am a doctor."

"You?" said Ada, her gaze wandering from his sunburned face, which had on it the unmistakable up-all-night expression, to his white flannel-clad figure, and then to the cottage beyond, which looked so absurd, in the growing daylight, with a quantity of dying candles burning on the tables.

"It's all right," he said, seeming to understand her perplexity. "I'm Alan Browne, of Wimpole St. I'm down here for the boating, and I've been having a bachelor party. Didn't you hear that fellow laughing as he went off just now? I had to get four of the others to take him away."

"I know your name," said Ada, earnestly. "Come with me. I am a nurse from Mr. Edgar's Home. "I'm in charge of Mrs. Mertoun up at the Hall, and she's dying. If you don't come at once it may be too late."

"What's the matter with her?" said Dr. Browne. "I've got a pocket medicine case here; shall I bring it?"

Nurse Harcourt leaned on the gate and said something in a scarcely audible voice; then she took out the bottle from her pocket, and held it up for inspection.

"Impossible!" he exclaimed.

"Come and save her," said Ada, solemnly. Dr. Browne turned, hurried into the cottage, and in little more than a minute reappeared with a small case in his hand Seeing him ready to follow her, Ada immediately started off as quickly as possible on her return road. Alan Browne hurried after her, leaving the little cottage, with all its windows open and its candles burning to show its disorder to any passer-by who might chance to wander that way.

"You are a very good walker," said Dr. Browne, when he had got up with her.'

"I believe I am," said Ada, and went quickly on without any further remark.

These two, going swiftly through the pale, ghost-like morning mist, would have looked strange to any one who could have seen them. Both were very pale; Dr. Browne had got rather bored by his bachelor party, which had lasted too late for his taste; and then he had been somewhat startled by Ada and what she had said. Nurse Harcourt was white with excitement and fatigue, although she did not know it, nor knew that she was weary. She was intent upon returning to her charge; she was full of anxiety as to what might have happened in her absence.

"You know," said Dr. Browne presently, "this thing can't be possible. She is a noted beauty; the men that stay in Lostayvil go to church to look at her. Who could do such a thing?"

"I can't say, sir," said Ada; "but I do not think I am mistaken."

Dr. Browne was so bewildered by the unwonted manner of her introduction to him that he forgot this vision of the morning was a nurse; but Ada remembered her position, and addressed him with the manner she used in sick rooms—quiet, but having in it an odd mixture of defiance and deference.

Very little more passed between them; they walked so quickly that it was not easy to talk. Dr. Browne covertly observed his companion very earnestly.

As they reached the gates of the Hall the stable clock struck five, and the gray mist was beginning to lift a little and glide away like the ghost of the dawn. It had been a strange walk, though neither thought of it at the time; but it had the effect of making them feel as if they had known each other for years. The house was not awake yet; all was just as Ada had left it. She gently pushed open the front door and led the way into the dark interior. Up the dark staircase the two crept, like thieves. The blinds were all closed, and only a faint glimmer of light came in through the chinks here and there. As the gray figure and the white figure came noiselessly up the staircase, suddenly something started from the door of Mrs. Mertoun's room, and, with a horrible cry, rushed across the landing. It was the cry of a most awful fear. It made Ada feel sick, and she longed to sit down on the stairs, for her legs gave way beneath her. But she would not. She remembered her patient, and, getting out the key of the room, opened the door and let Dr. Browne in; then she closed it behind them, and locked it. Agatha Mertoun lay rigid, like a lovely statue, on the bed. Her eyes were staring and fixed, and on her lips was a foam. Nurse Harcourt looked at her with a sinking heart—was it too late? But she quickly threw aside her cloak, and prepared to wait upon Dr. Browne, who soon became absorbed in his task. He used strong measures, and watched their effect with anxiety. Nurse Harcourt saw, with a curious sort of satisfaction, that he was acting upon the same idea with regard to the case which she had offered him. He did not reject it as impossible now. For two hours this fixed attention continued; neither left the bedside.

At last, Dr. Browne went to the window, and beckoned Ada to him.

"The servants will be up now," he said; "ask them to get you some coffee. You look perfectly worn out.'

"I believe I am rather tired," she said; "but I was right, wasn't I?"

"Quite right," he said; "and you have saved her life by your pluck."

Thus comforted, Ada went away in search of the servants. On the landing outside the door she found the man-servant whom she had seen the night before. He was standing still, with a face full of perplexity.

"Nurse," he said, "I believe master's gone out of his mind. He has been queer for some time past, but not like this."

"What is it?" asked Ada.

"He is sitting on his bed laughing; and then every now and then he stops, and shrieks out suddenly that the house is full of gray and white ghosts. I don't like it—it's awful!"

Then Ada remembered that cry of fear. "He must have seen me bring in Dr. Browne early this morning," she said; "he is in his boating flannels. Mrs. Mertoun was much worse in the night and I went for a doctor. Dr. Browne had better see your master."

The man looked a good deal bewildered, but recovered himself sufficiently to agree, and Dr. Browne heard his tale. While the servant was gone he turned to Ada and began—"You know the house better than I do—perhaps you can tell me—"

"Better than you do!" exclaimed Ada; "not much. I only got here last night at eleven."

"Last night at eleven!" repeated Dr. Browne. "Why, what a night of adventure you have had! No wonder you look worn out. Well, you can tell me who to send to, because there is evidently something very wrong here?"

"Yes, I can tell you that," she answered. "I have the address of Mrs. Mertoun's sister, who sent me down, and to whom I was to telegraph if necessary."

"That is all right," said Dr. Browne; "have you ordered any breakfast?"

"Not yet," she answered.

"I will send the man to see that it is got ready for you, and brought to your room. Now go straight to bed."

"Thank you, sir," said Ada, "but how can I leave Mrs. Mertoun?"

"I am not going away just yet; you know I did not travel from town yesterday. I will have her attended to; and you shall be called in four hours."

"Thank you, sir," said Ada again; and went away down the now sunlit staircase, on which her room opened.

"Thank you, sir," repeated Dr. Browne to himself. "What an extraordinary little woman it is! And what eyes! By Jove, it has been a night of adventure."

Ada got into bed, drank some warm coffee, and than fell suddenly into a deep, dreamless sleep. It was the repose of complete weariness. Four hours later the maid knocked at her door: Ada started up broad awake in an instant, and as fresh as a flower. In a very short time she was dressed and at the door of her patient's room. The maid was in charge: Dr. Browne had left her with instructions what to do, and Mrs. Mertoun seemed to be a little better. Agatha was lying on a heap of pillows looking very white, and wild, and strange. But she was evidently in less suffering.

"My dear little nurse," she whispered, when Ada bent over her, "I know you have saved my life. They will not tell me where my husband is, but you will. Is he mad?"

"I don't know anything," said Ada. "I have been asleep all this time."

"He must be," she went on. "I am sure he was not in his right mind or he would never have attempted what he did—you believe me, don't you? He loved me, when he was himself; but sometimes he had awful fits of jealousy, when I have thought before now that he would try to kill me. It was in one of these fits that he brought me here; and it has been growing on him When we were married I was thought a beauty; and he was always fancying I should get tired of him. Oh, nurse, I am sure he was not in his right mind. You will tell the doctor so, won't you?"

"Yes, yes, I will," said Ada; "and indeed I think so: I should have said so in any case. And the servants told me this morning that he was not in his right mind.

"Ah! then it will be all right," said Agatha, with a sigh of relief Ada understood then that this beautiful woman still loved the husband who had attemped her life, and that her great dread was lest he should be held accountable for his attempted crime.

Late that night Zoe Conington arrived with her husband; they brought with them a "mental" attendant, who immediately took entire charge of Edward Mertoun. The dreadful thing which Ada had discovered and prevented was kept a secret among the few who knew of it.

Every day, after Zoe arrived, Agatha insisted that her dear little nurse, as she always called Ada, should go for a walk. The country around the Old Hall was exceedingly beautiful; to wander about in it was keenest pleasure possible to the country-born girl. Zoe did all she could to make her happy; but she found that nothing pleased her so much as the fresh air and the wild flowers. But Zoe one day carried a great piece of gossip to her sister's sick room.

"My dear," she said "I know now why Nurse Ada is so fond of the field. Dr. Browne meets her. They will be telling us they are engaged soon!"

And so they did. One day they came in together with a conscious look of guilt. Dr. Browne says that when he asked Ada a question, which girls reply to generally in either a sentimental or a scornful manner, Ada merely said,

"Thank you, sir."—[The Whitehall Review.

ONE KIND OF HUMOR.—Humor consists in all the variations played on the feeling by the subtle caprice of man, and appears just as truly in Charles Lamb's sudden answer to the omnibus conductor's question,—"A full inside?" "Well, I can't answer for the other gentlemen, but that last apple dumpling at Mrs. Gilman's did the business for me": or in Sydney Smith's grave question to the doctor who ordered him "To take a walk on an empty stomach," "On whose?"—as in Thackeray's curious power of "tremulous change from the comic to the pathetic." It is the power of suddenly and grotesquely varying the tone of feeling struck in which the humorist's skill consists. And that may be done as effectually where neither of the chords of feeling brought into sudden contrast is pathetic, as where one of them is pathetic and one comic. When the omnibus conductor's question was accepted gravely by Lamb as a thoughtful inquiry as to the sufficiency of his own last meal, there was no pathetic chord touched at all,—nor was the touching of any such chord possible,—and yet no one could deny that it played such a variation on the feeling with which the conductor's common-place business inquiry had been heard, as to be in the very truest sense humorous. —[The Spectator.

Minnie May's Department.

My Dear Nieces,—Many of you are blessed with kind, loving grandparents, and many more would give all they possess for that blessing. What can be more lovely than to see the dear grandmother or grandfather sitting in the sunlight by the open window, enjoying the fresh breezes as they play so gently with their silver locks: or by the cozy fireside, surrounded by loving grandchildren, who gather to hear the stories of his or her early childhood, and as each earnest, attentive face is rewarded with a sweet smile, who can help saying within himself, "Was there ever another so kind and loving?" Not a child would turn away with an angry gesture when chided for apparent misdeeds, but listen and try to please by every word and action. Who would not gladly help to while away the weary hours by reading aloud, when those poor old eyes grow dim with age; or become the companion and support, in pleasant walks, of grandparents, who treasure every little thoughtful word and action toward them more than we can imagine. If he or she has parted with the help-mate and dear ones of early life, is not that the more reason why we should do all in our power to render the remaining days happy? And in order to accomplish this we cannot be too thoughtful, loving and willing to devote ourselves to their comfort. If we listen to their advice, which years of experience have taugh them, we need not look back in after life, as many have done, and wish we had followed their counsel. But, alas! how many there are among us who look upon these dear old people as inconsistent, because their views do not coincide with our own, not thinking of the changes that so many years must necessarily make, and in consequence we deem their ideas as old-fashioned and of little importance. It is not until they have passed from this world forever that we realize what a great comfort they were to us, and how much more we might have done for them in return. Bear in mind, dear girls, that each one of you may some day be old and infirm, when you will need the same loving attentions bestowed upon you. Minnie May.

Answers to Inquirers.

Flora.—1. It would be impossible for a stranger to suggest ways and means of making money to one unable to give up her home duties. Could you give weekly lessons to any friends' children, or do needle work of any kind? We regret that, as strangers to your acquirements and other circumstances, we are quite unable to give you advice. 2. It is extremely impertinent for a gentleman to stare at a lady wherever he may meet her. Take no notice of him, unless you are introduced to him by a mutual friend.

Somebody's Sunshine.—1. If your name is an uncommon one, you need not have your address on your visiting cards; but if there be other families of the same name in the district, it is apt to create confusion if you call where your card may be mistaken for that of someone of the same name. 2. The whiteness of linen greatly depends on the rinsing after boiling; the clothes should be rinsed twice before they are blued; if possible, spread them on the grass to bleach, leaving them all night. 3. A watch and chain should not be worn in full dress, but in semi-evening dress it may be worn.

Young Housewife.—All sorts of insects can be destroyed by using hot alum water. Take 2 lbs. alum and dissolve it in three or four quarts of boiling water; let it stand on the fire until the alum disappears; then apply it with a brush, while nearly boiling hot, to every joint and crevice in your closets, pantry shelves, bedsteads, and the like. Brush the crevices in the floor, of the skirting or mop boards, if you suspect that they harbor vermin. If, in whitewashing a ceiling, plenty of alum is used in the lime, it will also serve to keep insects at a distance. Cockroaches will flee the paint which has been washed in cold alum water.

Kitty.—1. A young lady should not correspond with a gentleman unless she is engaged to him, not even at his request. 2. Some persons cannot help blushing; it is considered a maidenly grace. The young ladies of the present day would often be thought more charming if they knew how to blush. 3. Crossing a letter is very objectionable, and can certainly be avoided now that paper and postage are cheap.

A Subscriber.—1. Wash your hair with cold water every day; it will strengthen it, keep it its natural color, and promote its growth. 2. To restore black crape, take scalding hot skim milk and water, with a small piece of glue in it. Immerse faded and rusty black crape in this for a few minutes, then take it out, clap it in the hands and pull it dry. 3. Business letters and MSS. for the press are written on one side only of the paper employed. Private letters are written on both sides. 4. Baking powder should be mixed with the flour in its dry state, and not dissolved in water as you mention.

Recipes.

Starch to Gloss Linen.—Take 2 oz. white gum arabic powder, put into a pitcher, and pour on it a pint of boiling water; then, having covered it, let it stand all night. In the morning, pour it carefully from the dregs into a clean bottle; keep for use. A tablespoonful of gum water stirred into a pint of starch that has been made in the usual manner, will give linen collars, shirts, etc., a look of newness when nothing else can restore them after washing.

Chocolate Caramels —One pint of sugar, dissolved in as little water as possible, half a cup of butter, one tablespoonful of vinegar, one cup of grated chocolate; boil until quite thick, put in buttered tins, and cut in squares when partly cooled.

Apple Fritters.—Make a batter, not very stiff, with one pint of milk, two eggs and flour to bring it to a right consistence. Pare and core six large apples, chop them small, and mix them well in the batter. Fry in lard, and serve with powdered sugar sifted over them.

Rhubarb Pie.—Stew rhubarb; add the grated rind and juice of a lemon, the well-beaten yolks of two eggs, and sweeten with white sugar; line pie tins with a good crust and fill with rhubarb, bake until the crust is a delicate brown; beat the whites to a stiff froth—it will be necessary to add three tablespoonsful of powdered sugar, flavor with vanilla, and spread over the tops of the pies; return to the oven until a light brown. The eggs and lemon given are enough for two pies.

Lemon Custard.—Beat two cups of sugar and half a cup of butter until light, then add four well beaten eggs, two grated crackers, the grated rind and juice of two lemons and half a pint of milk.

Graham Muffins.—Set the iron gem pans on the stove to heat; beat one egg light in a basin; add one teacupful of sour milk and two tablespoonfuls sugar, stir well together, add a pinch of salt, stir in graham flour to make rather a stiff batter; mix thoroughly, with the addition of one tablespoonful of melted butter; and lastly, stir in one-third teaspoonful of soda dissolved in a teaspoonful of hot water. The batter, when ready to drop into the well-heated and greased gem pans, should be so thick that it will not run from the spoon, but drop out nicely. This will make one dozen excellent gems.

More Oirish.—"Not hang our murtherers. Be jabers! I should like to see the spalpeen that murthered me hung twice."—[Judy.

A would-be witty minister once asked a country gawky what inference he would draw from the passage of Scripture which says: "The ass snuffeth the east wind." The youth replied that the inference he should draw from that passage was that "the ass would snuff a long time before he would get fat on it.—Oswego Times.

The French Cook.—Mrs. Fitznickle aspires to be as fashionable as any of her swell neighbors. She was telling a lady visitor the other morning that she had just engaged a very efficient, experienced, and high-priced French cook. While her friend was congratulating her on her new acquisition, the French cook insertod her head within the door-way and asked:—"Shure, missus, an' shall I pale the praties, or shall I bile them with their jackets on?"

Youth.

Of all that nature has given us of the lovely, springtime holds a foremost place. We almost forget that winter can blight with his breath the flowers that blossom so freely around us, or arrest the joyous flow of the brooks by one touch of his icy hand. All is sparkle and freshness. The drowsy lull of summer, and the sober peace of autumn, cannot compare in sweetness with, the rapturous buoyancy of spring, which seems to infuse itself into the very spirit, causing the old for the time to shake off the weight of his years, and the young to double the bright elasticity of soul which is yet his. Tennyson paints in glowing colors this most beautiful of all the beautiful seasons:—

"All the land in flowery squares,
Beneath a broad and equal-blowing wind,
Smelt of the coming summer, as one large cloud
Drew downward; but all else of heaven was pure
Up to the sun, and May from verge to verge.
From the woods
Came voices of the well-contented doves.
The lark could scarce get out his notes for joy,
But shook his song together as he near'd
His happy home, the ground. To left and right
The cuckoo told his name to all the hills;
The mellow ouzel fluted in the elm;
The redcap whistled; and the nightingale
Sang loud, as though he were the bird of day."

But there is another springtime, beautiful as that just described—the springtime of innocent, healthy youth, that season when life opens from the folded bud of childhood into the sweet, half-expanded blossom of youth.

We look back upon our boyhood, and sigh because the dreams and hopes which made life appear then a fairy land are but memories now. One pleasure followed another, and nothing seemed to weary or dishearten us; we could not imagine a time when our joys would appear, in retrospect, the hollow, painted bubbles they really were. Older people warned us sagely against trusting too implicitly to appearances; and we listened attentively as became our youth, but secretly disbelieved their representations. They are old, thought we, and have no inclination, and perhaps no time, to join in the pleasures of youth; but time will not wait for us, so we shall drink of his cup of enjoyment while it is at our lips: so we returned again and again to the intoxicating draught. We formed friendships. Oh, what outpouring of faith and affection we lavished on those friends, whom we thought, in our inexperience, were all but faultless; nor did we look forward to a time when the tinsel would drop from our idols and display the earthy foundation. We were happy, though it was an evanescent happiness, founded on a shell, which must some day inevitably break beneath our feet; but we did not know this, and ignorance *was* bliss. Oh, sweet springtime of nature! and sweeter springtime of youth! both doomed to pass away. The summer of manhood comes, and in its energy of action we do not at first realize the fact that our spring has slipped from us. We work on in our mature strength, but success is now our pursuit, not pleasure. A feeling of unrest, and a longing for something more satisfying than aught we possess, grows upon us. The summer sun oppresses us, and we crave repose. Summer glides into autumn, and a sense of weariness weighs us down.

Suddenly a great change falls upon us. It may be that some fabric of ambition or speculation, which we have been building up, stone by stone, falls with a crash, crushing in its ruin all our hopes; or perhaps some loved friend has broken the bond of affection which years had woven, and our faith in human friendship receives a shock it never recovers. Or, perchance, it is death's black shadow that glooms our sunshine. Winter has overtaken us, and though our hair may be unsilvered, and our strength unabated, nevertheless, our day is gone by, and we step into the background, and watch others press forward to our place. We have grown strangely wise now; but increase of knowledge does not bring increase of happiness, and gladly would we quit the bare height, with its extensive view, to wander again in the flowery sheltered valley of youth. If we could only prize our springtime as we enjoy it! But, alas! no; we long to reach the future, feeling sure that the fruition of happiness lies there. Experience is the only teacher whose words are believed, and he but speaks when youth is passed; then he opens our eyes to the beauty of the gift which we valued so slightly when we possessed it, and though we endeavour to impart the wisdom thus acquired by us to our successors, they, too, as we, will not listen until this truth is forced upon them by experience—that for innocent joyousness and careless buoyancy of spirit, no after season of life can compare with its sweet springtime.

Fishin'.

Come on, Cobe, there's light a plenty ;
  Crickey! ain't it lonesome here.
It's a boss dock, though, for fishin'.
  See the moonshine, ain't it queer?
Only Thursday, Tommy Tippup,
  On the ebb, too, hooked a pile ;
Ketched five killies and a catfish,
  Sittin' on this very spile.

Where's the worms? *Hev* I forgot em?
  Jingo! oh, no, here they air ;
Got 'em in my breeches pocket—
  Ouch! one's wriggled through a tear.
Ain't they cold things? Wot they're good for,
  'Cept for fishin', bothers me :
Though I s'pose, now each o' them worms
  Had his friends and family.

Hush! they won't bite if you chatter.
* * * * * *
  Cobe, it's fresh o' me, I know ;
But that moonlight on the water,
  Like a squirt o' milk, ain't slow.
Seems like spirits, made o' moonshine,
  Might come slippin', cool and white,
Down that towpath, straight from glory,
  Bringin'—whoop! I got a bite!

Hold up, stop yer racket, can t yer!
  Now I've got him—no, he's off ;
Took my bait, too. Wot a corker!
  Weighed a pound—by gum! it's rough.
Hi! you've got him! Land o' Goshen!
  Yank him in, Cobe! Good for you!
Lost him? Pshaw! it's hard luck, ain't it—
  Here, just bite this worm in two.

Cobe, it's awful still around yer ;
  Makes me feel almighty small,
Sittin' by the cruel river,
  Hungry for to drown us all ;
With the great big sky above us,
  Nothing in it lookin' real,
So far off, you can't believe it—
  Ki, yi! thunder! it's an eel.

Stars and moonshine makes me lonesome.
  Wot is us and all we air,
Sot against those great, etarnal
  Worlds that seem like fly specks there?
Somehow, I don't much believe it ;
  Ef they're worlds, why don't they fall?
That's wot stumps me ; stand from under
  When they start to drop, that's all.

Nary bite. The fish ain't hungry.
  Wish it wan't so quiet here,
Ghosts are handy round such places ;
  They're at home in spots that's queer.
First one ever I sot eyes on,
  It was such another night—
Cobe, wot's that so slim and quiet,
  Slidin' past there, all in white?

Say, I'm scared. If ghosts are comin'
  I must go, I really must.
Never did care much for fishin' ;
  Bites be blowed! I'm go'n to dust.
I don't hanker much, if any,
  After ghosts, they're too blamed thin.
Hear that splash ; if they were solid,
  I should say one tumbled in.

Haul in, Cobe, for Ican't stand it.
  That there splash just weakened me.
Yes, I'm scared, I don't deny it ;
  Wot's that floatin'? Don't yer see?
Somethin' white ; it's comin' nearey,
  Driftin' with the tide—look there!
Wot'd ye s'pose it is? Wot is it?
  Horror! See the long black hair!

It's a woman, Cobe, a woman!
  See her float and sink and rise ;
Get a rope, I'm goin' over ;
  Oh, my God, wot awful eyes!
Here goes * * * Phew! Cobe, it's a immidge
  Charcoal eyes, and stuffed with straw!
Say, Tom Tippup, when I catch yer,
  Watch out for a broken jaw!

DAVID L. PROUDFIT.

A pint of whisky put in a fruit-cake will keep it for six months, and the same amount put in a man will keep him down town till 2 in the morning.—[Texas Siftings.

Uncle Tom's Department.

PUZZLES.

1.—ENIGMA.

My 1st is in cat, but not in dog,
My 2nd is in eel, but not in frog.
My 3rd is in mean, but not in base,
My 4th is in drawer, but not in case.
My 5th is in good, but not in bad,
My 6th is in flounder, but not in shad.
My 7th is in mile, but not in rod,
My 8th is in pea, but not in pod.
My 9th is in ark, but not in boat,
My 10th is in pants, but not in coat.

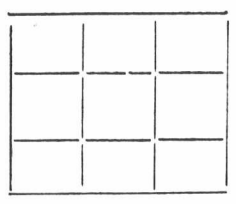
The successful solver of the above puzzle will get ten dollars for his trouble.

H. A. WOODWORTH.

2.—It was (my 1, 2, 3, 4, 5,) and I had just got (my 6, 7,) bed when a (my 8, 9, 10, 11) arose and kept awake. When the storm was over a (my 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,) began to sing.

EDITH GRIGG.

3.—Make a square and mark it into nine small blocks, thus :



and place the figures 1, 2, 3, 4, 5, 6, 7, 8, 9, so that the sum of any three in a straight line will amount to fifteen.

WM. JAS. DOWD.

4.—ILLUSTRATED REBUS.

5.—DIAMOND.

A composition ; a kind of stone ; a place of amusement ; to qualify ; to efface ; a verb ; a vowel.

MAGGIE F. ELLIOTT.

6.—RIDDLE.

I wait on the King, or the Queen, if you please,
I am under your eye, you can turn me with ease.

H. ARTHUR FOSTER.

7.—DROP LETTER PUZZLE.

W-e-e-h-r-s-w-l-t-e-e-a-a.

IDA CLEMENS.

8.—DECAPITATION.

Whole, I am a bird ; behead, and I mean to stir ; behead again, and I am a river in England ; behead again, and I mean utility ; curtail, and I am a pronoun.

HARRY A. WOODWORTH.

Answers to May Puzzles.

1.—Ere in the northern gale,
  The summer tresses of the trees are gone,
  The woods of autumn all round our vale
  Have put their glory on.
2.—Fain would I climb but that I fear to fall.
3.—Fly.
4.—Onions.
5.—Do your duty, come what will.
6.—Looking-glass.
7.—Unquestionably.
8.—A cannon.
9.—
  D an E
  A de N
  N ee D
  E nd S
10. —99⅜—99⅛—99x1—100.

Names of those who sent Correct Answers to May Puzzles.

Henry H. Wilson, John Laing, Thos. R. Morley, Minnie S. White, Robt. Wilson, Nettie Key, S. Gertrude Martin Regina, Harry A. Woodworth, Annie C. Robertson, H. Louisa Tompkins, Leah C. Moore, J. W. Forbes, Addie V. Morse, Ellen D. Tupper, Jas. H. Perry, Edith Grigg, P. Boulton, Minnie Tegart, Henry Stone, Ella Patterson, Jas. Watson, M. J. Cooper, Reuben N. Shier, Ida Clemens, H. Arthur Foster, Richard Kingston, Albert Eddie Daniels, Wm. Scott Daniels, Maggie F. Elliott, Nancy J. Murphy, Emma E. Seadon, Lizzie A. Riddell, R. J. Risk, Earnest Larmouth, Becca Lowry, Josehine Ashley, Martha Jackson, Esther Louisa Ryan, Maud Dennee, Mary A. H. Thomas, George W. Finnamore, Frances Mary Andrew, Wm. Jas. Dowd, Maggie A. Wilson, Winnie F. Lawe, Annie Gay, Bessie Allan, Johanna Beatrice Horde, Annie Craig, Jessie E. Houston.

"He's not just what you call handsome,' said the Major, beaming through his glasses on an utterly hideous baby, as it lay peacefully gnawing in its mother's arms. "But it's the kind of face that grows on you." "It's not the kind of face that ever grew on you," was the indignant reply of the maternal being ; "you'd be better looking if it had."

" Please, sir, there's nothing in the house to eat," said Brown's landlady. "How about the fish I sent in?" "Please, sir, the cat' ave eat them." "Then there's some cold chicken—" "Please sir, the cat —"Wasn't there tart of some sort?" "Please, sir, the cat—' "All right, I must do with cheese and—" "Please, sir, the cat—" "Then, darn it cook the cat, and let's have it all at once."

"Charley," remarked Jones , "you were born to be a writer." "Ah!" replied Charley, blushing slightly at the compliment ; "you have seen some of the things I have turned?" "No," said Jones ; "I wasn't referring to what you had written. I was simply thinking what a splendid ear you had for carrying a pen. Immense, Charley ; simply immense!"

GOOD ORDER SECURED.—A clergyman was recently annoyed by people talking and giggling. He paused, looked at the disturbers and said : "I am always afraid to expose those who misbehave, for this reason : Some years since, as I was preaching, a young man who sat before me was constantly laughing, talking and making uncouth grimaces. I paused and administered a severe rebuke. After the close of the service, a gentleman said to me, 'Sir, you have made a great mistake. That young man whom you reproved is an idiot.' Since then I have always been afraid to reprove those who misbehave themselves in church, lest I should repeat the mistake and reprove another idiot." During the rest of the service, at least, there was good order.

Mrs. Rabbit was talking about the loss of life at the late flat house fire. "I think," said she, "every one ought to keep a rope in his sleeping-room, with which to make his escape in case the flames cut off the stairway." "And in what way would you, for instance," asked Pensill, "supposing you were hemmed in your bod-room by fire, make use of the rope?" "What a silly question!" replied Mrs. Rabbit, with a mild giggle. "Why, I'd tie one end to the bedstead and the other around my waist, and jump out of the window, of course."—[Harper's Bazar.

SLEEP AND SLEEPLESSNESS.—Dr. J. M. Granville, in an interesting work on this subject, says, with reference to the difficulty some persons find in getting to sleep : "Habit greatly helps the performance of the initial act, and the cultivation of a habit of going to sleep in a particular way, at a particular time, will do more to procure regular and healthy sleep than any other artifice. The formation of the habit is, in fact, the creation and development of a special centre, or combination, in the very nervous system, which will henceforward produce sleep as a natural rhythmical process. If this were more generally recognised, persons who suffer from sleeplessness of the sort which consists in simply being 'unable to go to sleep,' would set themselves resolutely to form such a habit. It is necessary that the training should be explicit, and include attention to details. It is not very important what a person does with the intention of going to sleep, but he should do precisely the same thing, in the same way, at the same time, for a considerable period."

Flesh Eating Insects.

The family of horse beetles *(Silphidæ* or *Silphales)* feed upon the flesh of dead animals. They differ so widely in the structure of their bodies that it can only be said in general that the eleven jointed feelers gradually become thicker toward the point or have a knob at the end, and the wings reach almost to the point of the body.

They are very lively in their movements, and their sense of smell seems to be very acute, for guided by this they will fly from a great distance and make their appearance in a body about the carcass of a bird, fish, dog, or other animal. They often eat decayed vegetable matter if they cannot find a dead body, or seize upon living insects, not sparing their own species.

There are forty-one species of the common burying beetle *(Necrophorus vespillo)*, the most of them living in Europe and North America. When these beetles perceive the body of some dead animal, they fly toward it with a humming noise like a hornet, and begin to inspect the body to be buried and the ground about it, which is not always adapted for a burial place. If the ground is not suitable, they have been observed tugging and pulling the body along until they had moved it to a place which would answer their purpose. If they find everything in order, they move away at a suitable distance from each other, so as not to interfere with each other's movement, and burrow underneath the body, scratching away the earth so as to form a hollow, into which the body sinks.

In a very short time, owing to the rapidity with which they work, the body entirely disappears, and only a little ridge of earth indicates the place where it lay, and this is soon leveled. In loose soil they sometimes bury the carcass thirty centimeters deep. Gleditsch says that four of these beetles buried in fifty days two moles, four frogs, three birds, two grasshoppers, the entrails of a fish, and two pieces of liver.

As an experiment a mole was suspended above the ground by cords, as seen in the engraving; these burying beetles used their utmost endeavors to cut it down and cause it to fall when they were convinced that they could not proceed to bury it in their ordinary manner. Their object in burying these carcasses is to gain a proper body wherein to deposit their eggs, as the larvæ when hatched feed entirely upon decaying animal substances.

After the carcass has been buried, the female disappears in the ground, where she generally remains invisible five or six days. The larvæ creep out of the eggs in about fourteen days, and soon attain their full growth, when it burrows deeper in the ground, and at the chrysalis state becomes first white, afterward yellow, then darker and darker as it develops into the beetle.

The engraving shows a number of the best known forms of horse beetles.—[From Brehm's Animal Life.

FLESH EATING INSECTS.

PRESERVING THE COMPLEXION.—A lady writes that she is above fifty years old, and that she has not a wrinkle because she washes her face every morning and every evening in very, very hot water.

Pet Stock.

For the benefit of our numerous readers we intend to open a department devoted to pet stock, &c., and we shall be happy to receive from our subscribers any items of interest under this head.

An Accomplished Dog.

Sir Walter Scott immortalised the sagacity of a dog named Yarrow, who was the accomplice of his master, Millar, a shepherd, and of Murdison, a farmer, in the sheep-stealing expeditions which they carried on, more than a century ago, in the Tweed country. All that Millar had to do was to show Yarrow during the day the sheep which were to be stolen, and at night the dog made straight for the flock, got together the marked members of it, and drove them by roundabout paths to Murdiston's farm. Two things were particularly remarkable. In the first place, if Yarrow when thus employed met his master, he observed the utmost caution in recognising him, lest he might make him the object of suspicion; in the second, the dog seemed to have an idea that his practice was dishonest, and that darkness was the fittest season for such deeds. In the event of the sheep proving unwilling to leave their pasture, Yarrow would use every effort to urge them onwards, but whenever day began to break he abandoned the attempt. The dog (says *Little Folks*) was said to have been hanged with his master, but Sir Walter Scott states that this was not the case, and that he survived Millar a long time, though he did not exhibit any of his wonderful instinct when in his second master's possession. Of course it was a great crime to put his skill to such a bad use, but there can be no doubt that Yarrow's sagacity fully justified Sir Walter in describing him as an "accomplished" dog.

Two Clever Cats.

Here are two stories about cats and their cleverness. A farmer in one of the American States had a fine Maltese cat, of which he was so proud that he thought he would lend it to the proprietors of a show in a large city eighteen miles distant. So he put the cat in a bag, and carried it in his wagon to the showman, who was delighted to receive so splendid a specimen of the feline tribe. But the showman was not destined to keep his treasure long, for on the third day after it was taken away from its old home the cat appeared at the door, mewing for admittance, having found its way through eighteen miles of country which it had never before seen. In the second story, a cat and a bag again figure, but this time it is the cat which carries the bag, instead of the bag holding the cat. A lady (says *Little Folks*) owned a young cat about twelve months old, which had on several occasions shown instinct of a very high order, and one morning she heard her pet mewing loudly on the doorstep. Upon opening the door, she found the cat holding a large bag, stuffed full of paper and rags, which had been left in a fire-wood shed, about twenty yards from the house. This the pussy had evidently dragged to the door, with the view of calling her mistress's attention to it for some special purpose; but the lady incautiously seized the bag, and opened it, when, to her surprise and terror, out jumped an enormous rat, and before the cat had time to seize it, it made its escape.

A little girl, aged five, living at Nunhead, England, was walking recently with her brother by the side of the river, when, her foot slipping, she fell into the water. The child had already been carried some yards from the spot, when a large Mastiff bounded into the water and seized the child by her dress, and swam with her to the bank, where she was taken out of the water by a young man who had been attracted to the spot by the cries of the little girl's brother.

However useful they may be, Arctic dogs seem to be deficient in that affectionate disposition which endears their species so much to man. Captain Vesey Hamilton stated at a recent meeting of the Royal Geographical Society that he believed the Esquimaux dogs to be the most ungrateful creatures in creation. He had travelled for several hundred miles by sledge, and for six weeks it was his duty regularly to feed the dogs; but, after only a few weeks' absence, on the conclusion of the journey, they would not recognize him in the slightest degree.

Little Ones' Column.

Our thanks are due to little Alberta Oldfield, aged six, for the first spring flowers. Now I give you a story about a little boy and his pig:—

The Kink.

A boy had a pig with a kinky tail—
A pig the size of a small tin pail;
The boy took a notion, don't you think,
One day he'd straighten out that kink.
Well, at it he went; his will was good;
He splintered it up with bits of wood;
He greased it and soaped long and hard,
With tallow and oil and soap and lard.
The rags he gathered that kink to dress
Would make a junk shop a success.
The cellar got full of old roap ends
He'd borrowed and begged of all his friends,
He held up the pig by the tail a week,
Till he got too feeble himself to speak;
He tied the tail to a lilac bush
To coax him out of his skin with mush,
And straighten the skin this way; but that
Was a waste of temper and time and fat.
The boys, his neighbors, took sides and fought
About the matter, for some boys thought
He never could straighten that kink, and some
Were "sure he could," and "he would by gum!"
So the tale of the pig through the city flew,
Not the pig's own tail, for that merely grew
Where it ought to grow, in the people's view;
But the tale of the tail, and the strange employ
That sorely puzzled this lively boy,
And wise old people would chuckle and wink
And much consider this famous kink.
Ministers learned and lawyers profound,
For much more sense than a horse renowned,
Mayors and merchants and aldermen,
Hotel clerks and railroad men,
They came by dozens, they came pell mell,
To see if the job was working well;
But the pig went mad with his tail unbent,
He wouldn't unkink it worth a cent.

—*Eugene Field.*

Gretchen's Birthday.

Gretchen is a little German girl. She has hair as soft as silk, and eyes as blue as the sky and as round as saucers. She has a fat little nose, and a tiny red mouth, which has such an odd way of opening to say "Yes, yes," when you ask her a question, it makes you laugh to see it.

Hans is Gretchen's brother. He is two years older than she, and is quite a little man. His face looks like the round moon. When he laughs, which he does very often, up go his fat little cheeks so that you can scarcely see his eyes.

Hans loves Gretchen dearly. He would do anything in the world to please her. One day, just a week before Gretchen was six years old, Hans asked his mother for money.

"What do you want it for, my son?" said she.

"I want to buy a present for Gretchen's birthday."

"You are a good brother! I am sorry I cannot give it to you. I work hard all day to earn food and clothing for my dear children, and have no money to spare for presents."

Hans felt badly, and wished he could earn something. But he was only a little boy, and did not know how to go to work.

Gretchen's birthday came at last. Hans had not a penny in his pocket. When he started for school in the morning, and bent his fat face to kiss his sister good-by, he felt sad to think she must go without a present.

Gretchen put her chubby arms about her brother's neck and laughed as merrily as ever. Had she not Hans, and the good mother, and the sky, and the grass, and the flowers? She had all these things to make her glad. What matter if she had no gifts.

On his way home from school Hans was in luck. A man asked him to hold his horse. Hans did hold him, good and strong, for more than half an hour. When the man came back he put a bright piece of silver into the boy's hand. Such a doll as that silver bought! It was a beauty.

Gretchen was so glad when she saw the doll! Hans was so happy when he gave it! The good mother was so pleased to see her children love each other so dearly! I think there never was a happier birthday.

Commercial.

THE FARMER'S ADVOCATE OFFICE,
London, Ont., June 1st, 1883.

Another cold month has just passed. The month of May has been one of the coldest for years, and, in this neighborhood, one of the wettest. In fact, seeding and planting have been much delayed, and there remains a great portion of the planting yet to be done. The markets have been quiet, and the tendency is lower prices in almost all products. The

WHEAT

prices have not altered much. The upward tendency of last month's prices has been generally sustained, though that which is being offered at the present is picked up for home consumption, millers needing all that is being offered to keep them employed. The winter wheat has not gained much in growth during the month, and many fields are left standing which would have been better plowed up and other grains sown. We do not look for much change in its price in the meantime. The European markets have somewhat declined, but Canadian prices are generally sustained. A report of the Russian crops, dated May 7th, says: The official reports on the state of the crops in the Governments of Samara, Simbrisk and Astrakan, which are sometimes collectively called the granary of Russia, report that the winter sowings have all been lost and the crops a total failure.

BARLEY

continues dull, there being neither supply nor demand, prices being purely nominal.

OATS AND PEAS

are steady, prices remaining firm, with an upward tendency for oats, and with an easier feeling for peas.

CHEESE

is easier with prices still downward, the local demand being much more than supplied. Factorymen, in looking for buyers, have to accept the lower offer or keep cheese on the shelf, though the season's make is very short, many factories not making much over half they were this time last year; but in the cheese trade, like other articles, it is best to sell as soon as ready to ship.

BUTTER

also is lower, the local demands being more than supplied; sellers have to accept lower prices. Though it may be hard for some farmers to acknowledge that the butter made in the country is not first-class, yet it is a fact, and if some of them were at the selling of some of it in Eurepean markets, they would soon acknowledge it. The fact is, the sooner our farmers go in for creameries the better it will be for the country in this respect. What is asked for and what sells is a choice article.

FARMERS' MARKET.

LONDON, ONT., June 1st, 1883.

Per 100 lbs

Red wheat..	$1 85	to	$1 90	Eggs,small lots	14	to	15
Deihl	1 80	to	1 85	Potatoes, bag	65	to	70
Treadwell..	1 80	to	1 85	Apples.....	1 00	to	2 00
Clawson.....	1 60	to	1 75	Roll butter.....	15	to	16
Corn..	1 25	to	1 30	Tub "	14	to	18
Oats..	1 35	to	1 36	Crock "	16	to	18
Barley	1 05	to	1 20	Cheese, lb....	12	to	13
Peas.....	1 15	to	1 25	Onions, bush.	60	to	0 80
Poultry (Dressed)—				Tallow, clear..	7	to	8
Chickens,pair	0 70	to	1 00	" rough.	5	to	5
Ducks, pair..	0 75	to	1 00	Lard, per lb....	14	to	16
Turkeys,each	0 75	to	1 50	Wool	18	to	20
Poultry (Undressed)—				Clover seed,	0 00	to	0 00
Chickens,pair	0 60	to	0 75	Timothy seed..	0 00	to	0 00
Live Stock—				Hay, per ton	9 00	to	10 00
Milch cows...	40 00	to	60 00	Beans per bush	1 25	to	1 50

TORONTO, ONT., June 1st

Wheat,fallNo.1	$1 07	to	$1 08	Apples, brl....	3 00	to	4 50
Wheat, spring	1 09	to	1 11	Tomatoes, bu..	0 00	to	0 00
Barley...	0 50	to	0 70	Beans, bu.....	1 25	to	1 50
Oats	0 45	to	0 47	Onions, bag...	0 50	to	0 60
Peas..... ..	0 80	to	0 00	Chickens,pair..	0 80	to	0 90
Flour.....	4 70	to	5 00	Fowls, pair....	0 60	to	0 80
Rye	0 67	to	0 68	Ducks, brace..	0 80	to	0 80
Beef, hind qrs.	8 00	to	9 00	Geese.....	0 00	to	0 00
Beef, fore qrs..	6 00	to	7 00	Turkeys.....	1 00	to	2 50
Mutton... ..	9 00	to	10 00	Butter, roll....	0 17	to	0 20
Lamb.....	10 00	to	12 00	Butter, dairy..	0 17	to	0 20
Veal.....	9 00	to	10 00	Eggs, fresh..	0 14	to	0 15
Hogs,per 100 lb	9 00	to	9 00	Wool, per lb..	0 18	to	0 20
Potatoes, bag..	0 75	to	0 80	Hay.....	18 50	to	17 00
				Straw.....	9 00	to	10 00

GRAIN AND PROVISIONS.

MONTREAL, May 31.

Wheat—				Ont Oatmeal..	4 50	to	4 75
Can spring,	$1 14	to	$1 15	Cornmeal.....	3 75	to	4 00
Red winter	1 18	to	1 19	Butter—			
White	1 11	to	1 12	East'n Tp's.	22	to	24
Corn	67	to	80	Morrisburg..	22	to	24
Oats	40	to	40	Brockville..	22	to	24
Peas.....	95	to	97	Western....	22	to	24
Flour—				Mess pork....	22 00	to	23 00
Superior ex	4 90	to	4 95	Lard	14	to	15
Superfine...	4 55	to	4 60	Hams.....	14	to	15
Strong bak	5 15	to	5 25	Bacon.....	13	to	14
Pollards....	3 50	to	3 60	Cheese.....	11	to	12

LIVE-STOCK MARKETS

BRITISH MARKETS, PER CABLE.

Cattle Very Weak—Sheep Lower.

CATTLE.

The cattle market has been very weak and slow under excessive supplies. Prices, however, are not quotably different from last week.

	Cents ₱ lb
Choice steers.....	15
Good steers.....	14½
Medium steers.....	13½
Inferior and bulls.....	9½ to 11½

[These prices are for estimated dead weight; offal is not reckoned.]

SHEEP.

With large supplies and a weaker demand, the market for sheep has been weak and prices have declined 1c. per lb. since last week.

	Cents ₱ lb.
Best long wooled.....	@19
Seconds.....	17½@18½
Merinos.....	16½@17½
Inferior and rams.....	12@14½

[These prices are for estimated dead weight; offal is not reckoned.]

Montreal, May 28, 1883.

The supply of cattle at the market here to-day was 200 head, all of good quality; prime beef sold at 6½c; second class from 5½c. to 6c., and 3rd do., 4c. to 5c. per lb, live weight. Calves were numerous, the best sold from $5 to $8, and inferior from $2 50 to $3 50 each. Sheep brought from $5 to $8, and lambs from $3 to $6 per extra quality.

AMERICAN.

East Buffalo, N. Y., May 30.

The cattle market was steady at last week's prices. The quality of offerings is good and the highest prices paid were $6.60 to $6.80 for choice to extra good shippers; $6.20 to $6 50 for fair to medium; steers, $5.75 to $6; light butchers' $5 to $5.75; mixed butchers' stock, $3.75 to $4.65. Milch cows and springers steady at $35 to $50 per head. Sheep and lambs—supply moderate, about 48 cars on sale; market steady and strong at last week's closing prices. All offerings sold. The best on sale brought $5.90 to $6.25; ordinary fair to good, $5 to $5.75; common, $4.50 to $4.75. There were no heavy lambs on sale. Spring lambs, $9 to $10 per cwt. The hog market was steady at Saturday's prices. The bulk of the offerings changed hands.

CHEESE AND BUTTER.

LONDON CHEESE MARKET.

Two thousand one hundred and thirty-five boxes of cheese, the make of 18 factories, were boarded at the market on Saturday last—mostly last half of May make. No sales.

Little Falls, May 31, 1883.

Farm Dairies—There were 838 boxes cheese sold upon the morning market, consisting largely of farm cheese, though there were several lots of factory cheese as usual sold to the home trade. Prices ranged at 10@12c., the bulk of the sales being at 11½c. Several of the fancy farm lots brought 12c., and also several of the factory lots to the home trade—in all 10 or 12 lots.

Butter—Sixty-two packages of butter sold at 20@23c., bulk at the latter price. Nine packages of creamery sold at 23c.

Utica, N. Y., May 31, 1883.

Transactions were as follows: Thirteen lots, 690 boxes, at 11½c.; 87 lots, 4,810 boxes, at 11½c.; 7 lots, 542 boxes, at 11½c.; 3 lots, small cheese, 305 boxes, at 11½c.; 7 lots, also small, 155 boxes, at 11½c.; and 2 lots, 202 boxes, at private terms. Sales, 6,704 boxes; commissions, 1,106 boxes; total, 7,810 boxes. A year ago the transactions were 6,849 boxes; two years ago, when the market opened a week earlier, they were 7,450 boxes. The ruling price last year was 10½c.; the year before it was 9½c. Dairymen have reason to be well satisfied with the course of the market this year.

Dairy Notes.

Every dairyman should raise at least one-eighth of an acre of corn fodder for each cow, to help the pasture through the dry season.

The healthfulness of milk depends largely upon having clear and pure water for cows. Often that which appears clean, because free from sediment, contains the germs of disease, and these surely reappear in the milk.

When calves are to be raised on cows, it is a good plan to pick out one or more cows that give a large quantity of milk to carry three or four of the calves, as such milk is better for them than rich milk, which the dairy wants.

A butter-maker, writing to the Iowa *Homestead*, says the best butter color is a pailful of corn meal mush, fed warm once a day, the corn to be of the yellow variety; adding that it will increase the milk and butter as well as give a good color.

In the use of extra foods for milch cows, discrimination should be used in the apportionment of varying quantities to individual animals, according to their special requirements, their milking capacity and their condition as to age. Some cows will pay for a liberal allowance in increased supplies of milk and require more liberal diet to make up for the large drain upon their system, whilst other cows do not require and will not pay for forced keep. Heifers two and three years old, when milking freely, require some extra food to enable them to grow in size, as well as to milk abundantly. For want of this, many animals which milk freely with their first calves are checked in their growth, and never attain their proper size.

General Notices.

The 38th Provincial Exhibition will be held at the City of Guelph, Ontario, under the management of the Council of Agriculture for Ontario, from the 24th to the 29th of September next.

A first Fat Stock Show, under the joint auspices of the Council of Agriculture and the Toronto Electoral Division Agricultural Society, will be held in the City of Toronto, on the 14th and 15th of December next.

The Chatham Fanning Mill advertised in this issue has been favorably received by the farmers since 1868, which of itself is a good guarantee of a first-class implement. Our friends, when in need of a new mill, will do well to write to the manufacturer, Manson Campbell, Chatham, Ont.

Newell & Chapin, 118 Bonaventure street, Montreal, P. Q., again place their grinders before the public. They claim for their grinders that they grind very fast and without heating, require no dressing, less labor and are simple in construction. Be sure and write for full particulars.

The managers of the Industrial Exhibition, Toronto, are putting forth strenuous efforts to make the show a success, and with the facilities the Queen City has for the accommodation of visitors, the Industrial for 1883 may be looked upon as the great show of Ontario this year.

The annual show of the Montreal Horticultural Society and Fruit Growers' Association of the Province of Quebec will be held next September, at Montreal. It is expected this will be one of the best exhibitions that has ever taken place in the Dominion of Canada, as a large number of liberal prizes are offered in every class.

Mr. Elliott W. Stewart, of Lakeview, Erie Co., New York, one of the editors of the *National Live Stock Journal*, has forwarded us a copy of his new book on Feeding Animals, a practical work upon the laws of animal growth. The book is neatly printed and bound, and contains over 500 pages of most useful information respecting the rearing and feeding of horses, cattle, dairy cows, sheep and swine, and is a work that will prove a valuable addition to the farmer's library.

Messrs. J. J. Blackmore & Co., St. Thomas, Ont., are manufacturing the Acme Evaporator, both single and double. The machine consists of ten flat steam chambers placed one above another in close proximity, leaving room between them for the introduction of trays of fruit, thus securing evenness of drying; as the moisture, &c., is expelled from the fruit it is carried away without coming in contact with other fruit. This method will supply a long felt want.

Stock Notes.

Mr. Dawes, of Lachine, has made a large sale of Herefords to go to the Western States.

A good many cattle are being exported from the United States, but few are costing more than $6.25 at Chicago.

Mr. J. Hixon, of Montreal, recently sold to Mr. N. Hearn, of Guelph, 12 head of Hereford cattle and 7 head Galloways.

Mr. Whitefield, Rougemont, Canada, has sold a Polled bull-calf out of Corriemulzie 2nd 3,415 (a daughter of Lady Ida) for $600.

At the sale of Aberdeen-Angus cattle belonging to the Hon. Mr. Cochrane, at Kansas, Missouri, last month, the average was about $550 per head.

The season of shipping grass Texas cattle has fairly commenced, and prices are quotable at about $4.50@$5.50 for 750@940-lb. steers. The season is a good deal later than last year.

C. G. Keyes, of Palmyra, Ont., has recently bought from Mr. John C. Snell, Edmonton, the yearling shorthorn bull, London Duke, 699, B. A. H. B.

In the valuable herd of polled cattle at Pitfour, belonging to Colonel Ferguson, the calving season is now over. The crop of calves numbers ten bulls and eight heifer-calves, to the sires Lord Maurice 1,881 and Lord Buchan 2,205.

Mr. Wm. Watson, formerly of Keillor, N, B., now superintendent of the Kansas City Polled herd, Kansas, has been appointed by Mr. George Whitefield manager of his model farm at Rougemont, Quebec Province, Canada.

J. D. Davidson, of Belhaven, Ont., writes that "The advertisement I had in last month's ADVOCATE of a yearling Shorthorn bull for sale, produced quick results in the shape of a large amount of correspondence, and a purchaser in the person of Joseph Weir, Esq., of Dorchester, Ont."

Mr. J. F. Davies, of Glanworth, has sold the following Durham bulls:—Imported Mazourka Duke, 1,425, to R. B. Ireland, of Burlington; Duke of Moundale, to Wm. Petticary, of Glanworth; Sixth Duke of Mazourka, to J. G. Chapman, St. Thomas; and Fourth Duke of Sheshler, to Cummings Brother, Lambeth.

Mr. George Geary, of Geary Bros., Blibro Farm, London, Ont., the widely-known breeders of thoroughbred stock, sailed from Quebec on 26th ult., on an extensive purchasing tour in Great Britain. There are seventy head of imported thoroughbred cattle now in quarantine at Quebec for Geary Bros, and eighty more are expected in a few days.

Mr. K. Green, of Green Brothers, Ont., arrived on the 3rd May, at Quebec, with a fine roan bull, the Earl of Marr, and eight red and roan heifers, from the Cruickshank, Duthie and Marr's herds. They have arrived in good condition. Six of the heifers are in calf, and will prove a fine addition to their present valuable herd.

The valuable herd of Longhorn cattle belonging to Mr. John German were recently sold at Ashby-de-la-Zouch, Eng. The herd numbered 13 head, and did great credit to their breeder. The prior of Ashby was purchased by Mr. W. J. Legh, M. P., at 40 gs. The Earl of Huntingdon fetched the same sum from Mr. Taverner of Upton Park; Lord Moira (11 months old) was secured by Sir J. H. Crowe, Bart., at 32 gs.

Messrs. Lythall and Mansell, secretaries of the Shropshire Sheep-breeders' Flock-book, inform us (*Shrewsbury Chronicle*, England), that this famous breed of sheep is fast finding favor with the Canadians and Americans, and that already numerous parties from both these countries are buying up largely some of the best they can secure. The first consignment, consisting of sixty shearling ewes and six shearling lambs, selected with the greatest care from some of the best flocks in their native county, left these shores last week in the Leyland steamship Istran, the exporters being Mr. W. Miller and Mr. R. Callocut, both of Canada. The latter gentleman, who has hitherto bred Cotswolds, has decided to replace them by Shropshires, in order to meet the great present demand for mutton with plenty of good lean meat suitable for the English market. The purchases were made through Messrs. Lythall and Mansell, and Mr. Alfred Mansell personally superintended the shipping at Liverpool.

(Continued on page 192.)

STOCK NOTES.

(Continued from page 190.)

W. T. Benson, M. P., Cardinal, Ont., has sold 10 Hereford bulls and 11 Grade Hereford bulls to the Walrond Ranch Co., N. W. T.

On the 27th, 28th and 29th inst., the Messrs. Hamiltons, of Mt. Sterling, Ky., and others, will sell, at Dexter Park, Chicago, Ill., 150 Shorthorn cattle from the best and most choice strains.

The sale of Holstein cattle on the 16th ult., by J. W. Stillwell, of Troy, Ohio, at Chicaga, Ill., averaged $205.64. The 62 head brought $11,750. The prices ranged very evenly, the three highest being $400, $500 and $550.

The Live Stock Journal (Eng.), states, 18th ult., that Mr. K. Green, of Green Bros., Oakville, Ont., has sailed from Liverpool with some very promising Shorthorns selected by him from the herds of Sittson, Uppermill and Collyme.

At the first day of the sale of imported Jersey cattle by Messrs. A. M. Herkness & Co., Philadelphia, Pa., on 24th ult., the attendance was good and bidding active; 75 head were sold at an average of $403.20; and on the second day the sales were as large, both as to average price and total amount, whilst Pilot Rose, a beautiful creature, fawn color, with white spots, brought $2,400.

Mr. John Jackson, of Abingdon, Ont., writes us that his sheep have passed through the winter in an unusually healthy manner, which he attributes to the steady winter. One of his Southdown ewes dropped a lamb on the 15th November, and suckled it all winter. Mr. Jackson intends visiting England this summer, and will bring out a consignment of Southdowns and Shropshires.

On the 20th of July next, the last day of the Royal Agricultural Society of England's Show at York, Messrs. Rogers & Hamar, of Hereford, Eng., will sell the well-known herd of pedigree Herefords, the property of Fred. Platt, Esq., and on the 6th September, at the Leen, Pembridge, Hereford, the "Royal Prize Winners," belonging to Phillip Turner. See advt. in usual column.

M. Cook & Son, of Aultsville, Ont., by their advertisement announce to our readers that they have made the first direct importation from Holland of Holstein cattle, and they are now prepared to fill orders. These cattle are now attracting most deserved attention. As a breed they are claimed by their admirers to be large, handsome, easily fattened, desirable, and profitable for beef, of remarkably quiet disposition, wonderful milk producers—in fact the best dairy stock known.

(Continued on page 194.)

STOCK NOTES.

(Continued from page 192.)

All things being equal, both sexes have equal influence on the offspring; but when either is more highly bred than the other, as usually happens to be the case with the male, that parent will greatly exceed the other in forming the characteristics of the offspring.

Mr. Thomas Price, of Dilwyn, England, is a very lucky man. For three years in succession he has been fortunate enough to have thirteen lambs from five ewes, and this year he has sixteen strong healthy lambs from five ewes. His flock is one of Shropshires, and three of the ewes are only two years old. The ewe that brought four lambs is a two-year-old, and brings her first lambs. Mr. Price has also had twenty-five lambs from ten ewes this year. His flock must be a most prolific one.

The North British Agriculturist says: "A splendid lot of polled Aberdeen-Angus cattle have just been shipped for Quebec in the steamer Texas. They include twenty bulls purchased by Mr. Wilken, Waterside of Forbes, for Messrs. Gudgell & Simpson, of Missouri, at the joint sales at Alford and Inverurie. Mr. R. Bruce, Great Smeaton, sent by the same steamer, for Messrs. Geary Bros., London, Ontario, about seventy head of polled bulls and heifers. Of these thirty-seven bulls have been collected in the Forres district—three from Sir George Macpherson-Grant, Bart., of Ballindalloch; three from Mr. Milne, Overhill, Auchterless; one from Mr. Stewart, Knockollochy; four from Mr. Strachan, Wester Fowlis; and one from Mr. Ferguson, Skillymarno. With the same lot were sent eight heifers from Forres, three heifers from Mr. Milne, Overhill; six heifers from Mr. Ferguson, Skillymarno, and several cows of Easter Tulloch breeding."

Glanders appears to be causing great uneasiness in some districts of the United States. There is, perhaps, no disease that horse-flesh is heir to that is of a more deadly nature, or more to be dreaded. A case of glanders recently came under the notice of the editor of an American exchange among some valuable horses in New York, which were owned by a large brewery. One of the best veterinary surgeons in America was called. He immediately ordered that those horses which he was fully satisfied had the glanders should be killed immediately. In the course of a few days he had despatched seven, whose combined value was £700. The Detroit City Railroad Company shot a dozen horses affected with the same malady, and we believe a Bill is now before the Michigan Legislature which specially provides that "horses or other animals affected with glanders shall be destroyed, on the fact being established that they are so affected by the testimony of a qualified veterinarian." Similar laws are already in force in several States, and should be in all.

It is well known that the disease is very infectious and easily communicable to men. A case is mentioned by a contemporary of two deaths from this insidious complaint. The son of Mr. Conway, of Conway Farm, Whiteside County, Illinois, died in March last, after the most horrible sufferings; and the father was next attacked, and died a month afterwards. The State Board of Health ordered that the diseased animals should be killed, the premises thoroughly disinfected, and that any persons found afflicted with the malady should be isolated under supervision of a medical attendant. In view of the uselessness of all sorts of treatment, our contemporary declares with some force the suppression of the disease, as well as farcy, should be provided for in every State of the Union by the prompt slaughter of all infected animals as soon as the presence of the disease has been determined by a competent veterinarian. The number of horses in the United States in 1879 was 10,357,488. This certainly represents an interest important enough to be entitled to all the protection that can be accorded by legislation. The attention of the Hon. Minister of Agriculture and our Government authorities should be directed to this important subject.