THE FARMER'S ADVOCATE AND HOME MAGAZINE

PERSEVERE AND SUCCEED — FOUNDED 1866

AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE.

REGISTERED IN ACCORDANCE WITH THE COPYRIGHT ACT OF 1875.

VOL. XXXV. LONDON, ONTARIO. APRIL 16, 1900. WINNIPEG, MANITOBA. No. 500

CONTENTS OF THIS NUMBER.

PUBLISHED TWICE A MONTH, AT LONDON AND WINNIPEG, CAN.

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EDITORIAL.

The Judges and the Catalogue.

We notice that at a recent meeting of the committee charged with the revision of the rules and the appointment of judges for the Toronto Industrial Exhibition it was decided to insert a clause in the rules requesting the judges not to refer to the catalogue while in the discharge of their duties. We are not informed of the reasons assigned for this request, but presume it is based on the old-fashioned idea that the judges should, if possible, be kept in ignorance of the ownership and breeding of the animals shown. If this were possible it might be desirable, both from the standpoint of the judges and the exhibitors, but in these days of breeders' association meetings it is hardly possible to select competent Canadian judges who are not personally acquainted with most of the exhibitors at the leading shows, and who do not know their herdsman and their cattle, so that if there is anything in the contention that they are liable to be influenced by the knowledge found in the catalogue, it seems to us that the exhibitors who are not known to the judges might reasonably insist upon an introduction in order to be placed upon an equal footing with their competitors who are acquainted, and yet, as a rule, these are the men who object to the judge referring to the catalogue. For a number of years, at the request of exhibitors, the judges in the classes for dairy cattle at the Toronto Exhibition were brought from a foreign country, one of the objects being to secure men who were not known to exhibitors, and who were uninformed of the breeding and history of the animals shown; but while some excellent judges were secured, they have not given more general satisfaction than our "home-made" judges, and this year we understand that Canadian judges have been selected for all the classes of cattle on the nomination of breeders associations. If, unfortunately, a judge is appointed who is weak or dishonest, he will not need the aid of a catalogue to identify the men or the animals he may be disposed to favor. Exhibitors of Jerseys at Toronto last year will probably recollect that the foreigner who went through the form of judging that class made no reference to the catalogue. He went in empty-handed and bare-faced, and yet we fancy few will claim that his work was a blooming success from the standpoint of justice and fairness. Our own opinion is that in this matter justice does not depend upon the use or abuse of the catalogue, but on the selection of competent men of sterling character as judges, and trusting them fully. Knowing that their reputation is at stake, and that they are acting under the critical eyes of a company of discerning breeders who know what is right, and know when wrong is being done, there need be little fear that any will suffer from injustice. As to the catalogue, we cannot but think that if it is to properly fulfil its mission as an advertising medium, a check upon fraud, and an educational factor in giving helpful information, exhibitors should insist on having it made more complete and reliable, and that it should give the same amount of information respecting each and every entry. This should embrace the name and record number of the animal, the date of birth, the name and address of the breeder and owner, and the name and record number of sire and dam. The motto of fair boards and exhibitors alike should be "let there be light." Those who contend for the exclusion of the catalogue from the show-ring, and for keeping the judges in ignorance, should, to be consistent and to follow their idea to its logical conclusion, go a step or two further and stipulate that the judges be blindfolded and shall do their work by the sense of feeling, or else that the men who lead the animals into the ring shall wear masks to conceal their identity.

The Smithfield of Canada.

The question of the permanent location of the Ontario Provincial Fat Stock, Dairy and Poultry Show was finally decided at a recent meeting of the representatives of the various Breeders' Associations, and the Royal City of Guelph was chosen as the place where the show will find its home for the future, or at least during the good behavior of the people of the favored city.

The City of Brantford made a brave bid for the show, and presented many strong claims, not the least of which is the public spirit of its leading citizens, the generous hospitality of its people generally, and the unstinted willingness of representative men of both city and county to do and dare for the advancement of the interests of the show, and of the farmers and stockmen of the country. Brantford and its citizens will always hold a warm place in the hearts of the exhibitors and the officers and directors of the Fat Stock Show, for the kindly reception and treatment they received during the two years in which the show was held in that city.

The central location of Guelph, its prestige as a stock-raising district, and as a market for fat stock, to which buyers from all over the Dominion gravitate, its being the site of the Agricultural College and Dairy School, and the meeting place for the Experimental Union, together with the fact that for over a quarter of a century the stockmen of that district have maintained an annual Fat Stock Show, were claims which to the majority of those privileged to cast a ballot for the location seemed to promise the greatest good to the greatest number, and hence Guelph will still be entitled to the designation of "the Smithfield of Canada." While the future success of the show will depend mainly upon the action of the officers and directorate, yet much also will depend upon the hearty sympathy and co-operation of the local committee and the leading citizens of Guelph, whose profuse promises while pleading for votes will have been registered in many minds, and will not be forgotten by the stockmen, even if they are by those on whose behalf they were made.

Officers and citizens, however, cannot make a successful stock show unless the breeders and feeders on the farms of the Dominion do their part in preparing creditable exhibits. Of this, so far as the competition in the classes of sheep and swine is concerned, we have no fear, but in the cattle classes it must be admitted there is much room for improvement in respect to numbers, especially while even in quality we have not by any means reached the high average which might reasonably be looked for considering the many first-class herds existing in the country. The prizes now offered for cattle in both the beef and dairy classes are fairly liberal, and breeders will study their own interests by preparing and bringing out first-class specimens to represent and advertise the breeds in which they are interested, and to advertise the country as well. Our neighbors in the States are making vigorous efforts to re-establish their Fat Stock Shows, and if Canada is to hold her place of prominence as a stock-raising country, our cattle breeders will need to make a special effort to present a better showing at the Winter Fair than they have done in late years. It is gratifying to know that the Ontario Poultry Association has amalgamated with the Winter Show Association, and will hold its annual show at the same time and place. This feature will add very materially to the interest of the event, since the poultry industry has become one of the most important of which Canada can boast.

Mrs. Hoodless, who was chiefly instrumental in establishing the Normal Training School for teachers in domestic science and art, in Hamilton, Ont., has received a check for $2,000 from Lord Strathcona as a practical evidence of his sympathy with the undertaking. His Lordship has written a letter highly approving of the school.

Preparation for Spring Seeding.

As the month of April generally brings weather and soil conditions suitable for grain seeding in most sections of Canada, the present seems an opportune time to consider the question of making ready for spring work on the farm. Those who make it a rule to take time by the forelock and keep ahead with their work, so as to be ready to take advantage of any unforeseen circumstances that may occur, have doubtless made their calculations as to the crops they mean to sow on each field, and, knowing exactly the acreage of each field, have provided the necessary seed grain of a good variety, either from their own supply or from some good farmer who is known to keep his land clear of noxious weeds; clover and grass seeds have been carefully selected, to avoid sowing troublesome weed seeds; implements to be used in the seeding operations have been overhauled, repaired and sharpened, so as to be in condition to do their best work in the stirring and pulverizing of the soil for a suitable seed-bed; harness has been mended, cleaned and oiled, and collars covered and re-stuffed, if necessary, and everything made ready for an early start when the condition of the land and the weather is favorable for seeding. Those who have delayed these preparations cannot start too soon to make them, and the more thorough they are made the better.

Much depends upon the variety and quality of the seed sown, and also upon the thorough cleaning of the same. Do not depend upon running the seed once through the fanning mill, unless you have an uncommonly good mill. The largest and plumpest grain, as a rule, brings the best crop, while small, light and imperfectly-matured seed is liable to bring a crop of the same sort, and it costs just as much to produce the inferior crop. It takes just as much time to go over a field with a dull cultivator which slides over the hard places on the high ground without breaking up the soil as it does with a sharpened implement which will loosen and stir the land where it needs it most as well as where it requires it least, and the proper preparation of the seed-bed often makes all the difference between a good crop and a partial failure.

Early-sown spring grain, as a rule, produces decidedly the best crops. It is well, therefore, to be ready to rush the work when the time comes, though it is not wise in the older provinces, where clay soil prevails, to work the land before it is dry enough to bear the horses without poaching it too much. It may be worth considering whether the higher parts of a field which dry out first may not well be cultivated some days before the lower parts are sufficiently dry to go upon, as it sometimes happens that the higher land gets too dry and hard before the lower parts are fit to work on, and the moisture will be better retained in the high portions by reason of the extra stirring of the soil. Even after the grain has been sown, if a heavy rain comes to pack the land, it is often good practice to harrow those high places, even though the grain has germinated and grown an inch or two above the surface. The breaking of the crust and admission of air, heat and light, all of which are necessary to plant life, will cause the crops to grow more vigorously and gain time before possible summer drought occurs.

In districts where clover and grass seeding is done on spring grain crops, the early seeding is a distinct advantage in getting a good catch, and the plants grow stronger and are better prepared to resist a drought after the grain is harvested. In this connection it may be worth considering whether, as a rule, spring grain is not sown too thickly for the most healthy growth of both the grain and the grasses, the dense growth shutting out sun and air and giving the clover plants especially a weak and sickly growth, and leaving them liable to fail when exposed to the sun after harvest.

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Nova Scotia Government Aid to Agriculture.

For some years past the Nova Scotia Government has expended about twenty-four or twenty-five thousand dollars yearly upon agriculture. This amount distributed last year by grants to 119 agricultural societies, $10,000; Provincial Exhibition, $4,000; School of Horticulture, $2,000; School of Agriculture and Provincial Farm, $4,000; Farmers' Association, $1,000. The balance has usually been taken up in miscellaneous work, such as bonus to creameries, Institute meetings, reports, printing, stationery and soforth, leaving a small item for salaries.

During the last session of Parliament $10,000 was added to the grant, intending to improve the breeds of horses throughout the Province, which will probably be expended in procuring and maintaining some four or five choice stallions to be kept in different parts of the Province. It is possible that some sheep may be purchased during the year. The pure breeds of cattle are now being fairly well supplied by local breeders.

Regarding the Agricultural College project, the Legislature has given power to the Government to co-operate with New Brunswick and Prince Edward Island with a view to establishing a Maritime School of Agriculture, Horticulture and Technical Instruction, providing a satisfactory arrangement can be made with the other Provinces.

You cannot make a success of breeding horses or any other kind of live stock without having a clear-cut, definite idea of what you are driving at, and you must not expect to dip in and out in a speculative way and make a success.

Professional Men and Their Relation to Agriculture in Canada.

It is a common feeling among men of all sorts and conditions that the other fellow seems to have the best of it. There is probably no one who does not at times come to the conclusion that his lot is a hard one. There is a deadening effect in all routine work, which, coupled with ill-health, due to injudicious care of the body, overwork, or hereditary weakness, leaves a man discouraged and depressed at times. The farmer remains fairly robust. Good health makes educational improvement easy and pleasurable. The farmer or stockman doesn't lack for exercise, fresh air, sunshine, and abundance of wholesome foods. He does not value the result of these conditions in his own health sufficiently, and may sometimes envy the man who never has to take off his coat to his work, and this envy is frequently quite misplaced. The town represents the intensest side of human effort. In town the activity of man is massed, and the individuals of the mass are in competition such as is unknown in agricultural pursuits. The uncertainty of commercial life is proverbial. Ten or fifteen years' history in towns of over ten thousand people will generally record the failure of at least half of the men engaged in business at the beginning. Professional men, too, feel strongly the pressure of duties. Canada is strongly smitten with an ideal of advanced education, so that professional pursuits are encouraged beyond the requirements of the country and beyond the capacity of the substratum of masses of people to support them liberally or even adequately. The resulting competition leads them into extravagances for the increase of social connection, and many fine professional men find themselves in a disappointing state of respectable entanglement, synonymous with semi-poverty, at the time of life in which they feel that their powers are declining and the younger fellows are crowding in to push the older men to colder and more scattered suburbs of the social circle.

Of course a man must grow old some time. He will, however, grow old slower if he will recreate more. Every man can, should and generally does indulge some hobby or side line that furnishes a healthy leaven of pleasure to the humdrum of ordinary occupation. There is no wiser thing for the tired man than to take a leaf out of the farmer's book, and there is no branch of the farmer's business more attractive and satisfactory than the live-stock side of it.

The possession of land gives opportunity for the highest kind of enjoyment from constructive work and improvement under the direction of the owner. The building of fences, the construction of suitable barns and houses, the reclaiming of rough and waste places, the cultivation of fruit and flowers, making two blades of grass grow where one formerly grew, are all gratifying kinds of work. The breeding and improvement of live stock are not less so. It is one of the highest distinctions in England to capture ribbons for the champion horse, for pens of sheep or swine, or for the best calf of the year, and is in every case considered an additional honor to the highest honor in rank and nobility. Even Her Majesty vies with the gentry for honors with her herd. The speculative spirit in a new country attaches enhanced honor to occupations in which the money gains are more rapid than they are in agriculture. The application of science to agricultural, feeding and dairy operations, together with the recognition given by Governments, is raising the art of agriculture to greater dignity.

There is a good field open for men of wealth to apply surplus money to the work of improvement of live stock. This will not be done unless the indulgence in a taste for live animals becomes more general. Any venture in the business must be backed by interest and energy. The Bakewells must be men who are wedded to their art, and who have the tenacity to work for the realization of an ideal. It is probably true that no work has ever been accomplished under Government patronage equal to the work of single individuals, backed by strong personal zeal and interest. Work done by Governments must be largely done by servants, and so must lack the life and soul of individual effort. Since stock interests would certainly be helped by the enlistment of greater interest on the part of the professional classes, a professional man would make a poor living if put in the average farmer's shoes and obliged to make a living with the same resources. But with an interest in live stock and considerable capital, the professional man, with the susceptibility to new ideas that the professional classes are generally credited with, he should be able to confer benefits on the agricultural profession and bring benefaction, honor and gratification to himself and his family. There is in Canada a rather strong tendency on the part of young men who are the sons of farmers to enter the professions. The fact remains that agriculture is the representative occupation of the Dominion. It involves, directly or indirectly, about three-fourths of the whole population, and on account of its predominance it should be expected to assimilate other factors of population to it, and to more closely identify the interest of these factors with itself. The tired professional man, by embarking in land or live-stock ventures, will be recreating in the best possible way; the rich one will be promoting his country's good, and will be identifying himself with the best, foremost, representative interest and business, his land.

Books for Farm Libraries.

In addition to what the columns of the FARMER'S ADVOCATE furnish on all branches of practical farming from issue to issue, many of our readers desire to have in their homes for reference and special study a small library of well-chosen books. While the list of really good up-to-date agricultural works is not so large as to be necessarily confusing to those who undertake to select a library, still any one is glad to have suggestions as to the most desirable. In this connection we were pleased to notice recently a helpful bulletin prepared by Prof. J. B. Reynolds, of the Ontario Agricultural College, and issued by the Ontario Department of Agriculture, on books for farmers, stockmen, dairymen, and fruit-growers. On looking over this bulletin we notice that most of the works recommended have a place in our own large reference library, and also in our premium list published from time to time. Nor are we satisfied to simply recommend these works, but we have decided to place them within reach of all our subscribers, on terms so favorable as to render it a serious neglect not to take advantage of the offer. For list of books and terms see our agricultural library offer on another page of this issue.

STOCK.

Clydesdale and Shire Amalgamation Recommended.

To the Editor FARMER'S ADVOCATE:

SIR,—Certainly the horse-breeding industry of this country is of great importance in the meantime, and likely to continue so. We will take up the indispensable class for home and foreign city purposes. In the first place, a horse has to be up to a fair weight, not less than 1,600 lbs., and up to 1,800 lbs. or more, for export. A few years ago things were different, the American markets were our principal markets; they called for and tolerated smaller-sized sires. In their advertisements for a number of years their headlines were always for quality, little mention of weight being made. But with quality there should be weight also. Now I notice weight is the leading feature, and any one who has it does not forget to advertise the same to the fullest extent. Now comes the question, how are we to attain quality coupled with the size required for the British markets for heavy work in the cities? I will simply give you my observations for, say the last 30 years. At that time there were no stud books known as Shire or Clyde. Breeders simply used good judgment in crossing the best of what is now known as Shire and Clyde, and what grand progress was made in bringing up the standard of the draft horse! See what the late-lamented Laurance Drew showed to the world what could be done, and what he did has been done by no one breeder before nor since his decease. Twenty-five or thirty years ago, when we went after sires to Scotland or England, we wanted type. Sure and good breeders were, with few exceptions, the rule. Wonderful improvement took place in our heavy horses for ten or fifteen years, then they seemed to come to a standstill, and latterly, I am sorry to say in honesty, they are certainly deteriorating, from some cause, as is plainly seen throughout our country. Space will not permit to enumerate the numbers of our grand old breeding sires when constitution and type was our aim. Briefly I may say I believe that when the distinctions between the different types of Shire and Clyde or Scottish horse were tried to be made, each having their own separate book of record, and the export demand began, then began a course of inbreeding, pampering and overfeeding, which has ended in the present state of affairs. Now, when we want young sires of either class, the question is to get a breeder of average quality, or one that will sire a reasonable percentage of offspring that will prove profitable to the owner or the public. We may possibly increase the size of the Clyde or the quality of the Shire through themselves by selection, if we can afford to wait ten or fifteen years. If anyone can tell us how we can produce the best commercial export heavy draft horse in reasonable time by keeping those so-called breeds separate, I am willing to learn. I think the Shire and Clyde cross is just as much a draft horse model as the Bates and Booth families are a typical Shorthorn. I simply say I believe if we had only one stud book in Canada for the two classes we could soon bring the heavy horse up to his former standing. If you see the best representatives of the breed at the Highland Show of Scotland and the Royal of England, you will see the two types are becoming consolidated, and are much alike. I personally have been importing and breeding Clydes for 30 years, and have only owned one Shire in that time, so I have no personal axe to grind by any means. But as you have asked my views on that point, I give what I think is for the best interests of breeders and farmers, and for the best interests of the finances of our country. I will be pleased to have the disinterested views of anyone who will kindly contribute any information that will further the horse interests of our country in any way, at any time.

Huron Co., Ont. A. INNIS.

The Cowboy.

BY J. M'CAIG.

(Continued from page 187.)

ON THE RANGE—THE SEMI-ANNUAL ROUND-UP.

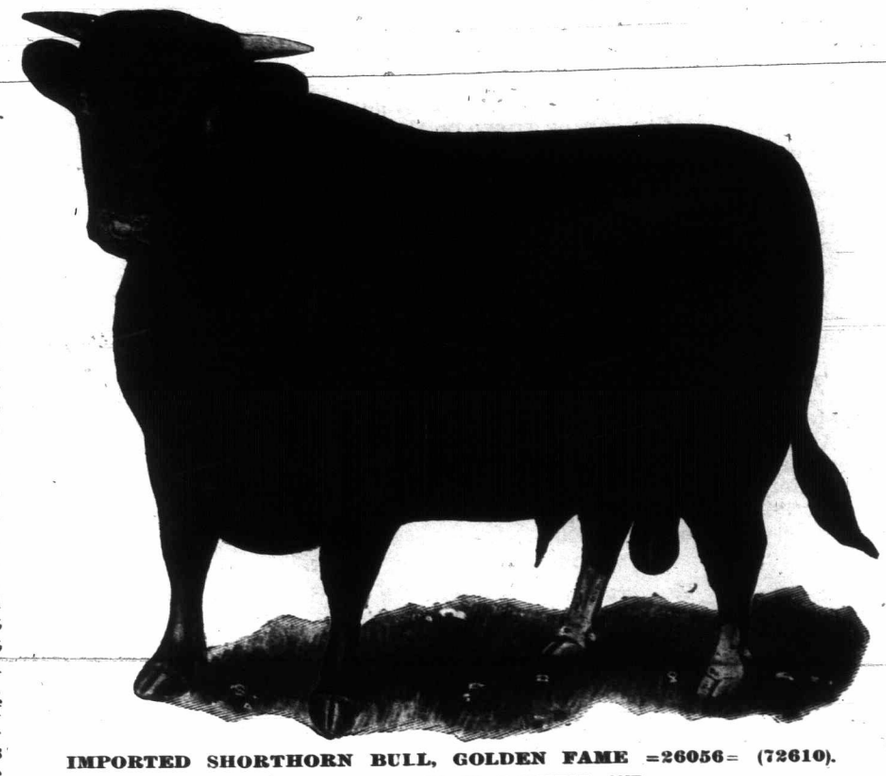
The work of the cowboy is arduous at times, and these times are at the round-ups. There are two round-ups: one in May and extending into June, the other beginning in August and extending into fall. The spring round-up is to brand the calves, generally a couple of months old at that time, and the fall round-up is to cut out the beef cattle from the bunches to ship them. It must be borne in mind that the cattle of different owners are intermingled and in small scattered bunches all over the country, and that the round-up is a combined movement to either brand the calves and let them go again, or to cut out each man's sale beef. As range is being bought up there is a tendency to limit the range to the land where the cattle belong. If a man owns sufficient range for his stock it is to his interest to keep them near home, as well as to keep other cattle off his range. When a cowboy goes on a circle he covers a great deal of ground. He rides hard for five or six days or more at a time, so hard that one horse is no use to him. He takes with him what is known as his "string" of cowhorses, generally eight or ten, and rides a different one each day. Cattle were formerly branded in the open in the old days, being simply held or herded by the cow-punchers, while one of them rode in after a calf, roped it and dragged it out to where the branding irons were heated. Now the stock associations have corrals in different parts of the range country, and the cattle are branded in these corrals. It is less picturesque and exciting, but is handier, and requires fewer men. Sometimes a calf may be missed on the round-up, and being weaned by next year its owner cannot be known. Such an ownerless animal is called a "maverick," from the name of a man in the early cow days who showed unusual facility in hunting up unbranded cattle and putting his own brand on them. Mavericks are considered the property of the stock associations, and are sold by them to individual cattlemen.

It is in the round-up and branding that the nice work of the cowboy is seen. Much as has been written about it, the operations must be seen to be understood. The converging of the various small bunches of cattle—steers, cows and calves together—at a point presents a curious spectacle. The cattle keep moving after being bunched, and this develops into what is called "milling," or a circular movement of the mass, while the cowboys ride close to the herd. There is a clanking of horns, a strong, murmuring, confused tramping as the motley colors and heads are carried aloft — here the pretty white-faced Hereford with spreading horns, the red or roan Shorthorn, the black, hairy Galloway, and occasional Texan, but all moving, tramping, jostling and excited, like the half-wild things that they are. The beef stuff are cut out and let go generally, and the cows and mothers held for the calf branding. The cowboy rides into the mass of mothers and calves, sees a little calf following close to the mother, recognizes her brand, and prepares to do for the calf. The two are followed to the edge of the bunch so as to be clear; the cowboy already has his rope with a running noose swinging about with a turn of his wrist, and watching his chance. It seems a sort of fatality for the poor calf, this running noose in the poise of the experienced cow-puncher; but roping a calf is an impossible feat to the uninitiated. With a fling of the rope the calf is literally snared by the heels and brought down. The pony, immediately the noose is caught, backs up and almost sits down; after a twist or two the rope is thrown about the horn of the saddle, and then the calf is drawn off to the fire; it is held down and the red-hot iron is applied to the side, hip or shoulder. There is a mixed odor of burning hair and burning beefsteak, and the pretty curly skin is marked for life. An agonized cry from the calf sometimes excites a fond mother, and she is a good kind to keep away from. The branding of heavier steers is more trying work. In cases of sale a "vent" brand has to be made and a new one put on. A steer's hide is sometimes an interesting piece of patchwork, from having changed hands frequently. Heavy cattle are roped both in front and behind. The noose in front is thrown over the head, and usually falls behind one of the front legs also by the stepping forward of the steer. After some plunging and jumping the steer stands still a moment, when a second cowboy strikes the hind leg with the noose, the steer steps into it, both horses draw in opposite directions, the steer loses his support and goes over, and the brand is applied. The steer occasionally becomes enraged, and it is wise for the operators on foot to reach the fence without loss of time after the steer is let loose.

The fall round-up is for the purpose of "cutting out" the beef. All cattle that are to be shipped are cut out and held or carried on from one round-up center to another, and are finally driven to the nearest shipping point to be loaded. Range cattle will sometimes travel twenty-five miles a day. A camp outfit must be carried along with a drive of cattle, and herders must be on night duty to hold the cattle together. Cattle scatter easily on the prairie. They are not seen in large herds, as might be expected. A drive may consist of five hundred steers, often from a single ranch.

The number of cowboys employed in the summer is much larger than in winter. Summer is the busy season. In winter the chief duty is to keep the cattle from drifting too far from the customary range, as they are apt to do before a storm, and to keep the cattle out of the brush and in the open. The crests of the hills are usually blown clear of snow, and are the surest feeding in rough weather. Cattle that shelter in the brush are likely to get logy and to get snowed up. Winter is a time of considerable hardship, but the tendency is to put up more hay, keep up weak cows and others requiring attention, besides all the calves of the previous spring. Large areas are likewise being enclosed by fences, and the whole ranching operations getting to resemble more the operations of eastern stockmen.

Cowboys receive thirty-five or forty dollars a month, but everyone cannot be considered proficient. It takes time to become valuable. As the life is quite isolated, there is little opportunity or need for spending much, and a steady fellow, by sinking his earnings in cattle and working at the same time, may in the course of a few years find himself with a valuable property. The business of cow-punching has its hardships and drawbacks, but it is free, eager, healthful, and, to a careful man, profitable and satisfactory. The cow-puncher is not a brigand, outlaw or sharpshooter, as he is represented in yellow-backed literature, but a serious, hard-working business man, with a love of freedom and a strong sense of honor, justice and politeness. He is not an ornamental product, but is an evolution of the cattle business and the predominating spirit of that business.



IMPORTED SHORTHORN BULL, GOLDEN FAME =26056= (72610).
OWNED BY W. D. FLATT, HAMILTON, ONT.

The Use of the Whip.

If an expression of a few of the things I have learned from actual experience would lead to an exchange of ideas on the use of the whip in breaking and training horses I shall feel amply repaid for doing—what someone else might have done far better.

In the first place, I think the whip is used too much. It is often used as an instrument of torture. Cases where it is necessary to punish a horse are rare. Of course, a horse that kicks or bites its master should be punished, but a martingale is more suitable than a whip. The noise together with the blow frightens him more than the cut of a whip and he suffers from no after-effects; yet experience proves that he remembers it just as long.

The whip is misused more in the treatment of shying horses than in any other class. A horse is trotting quickly along the road, when a piece of paper flies up. Not knowing what it is, the horse immediately—as in the case of all other unexplained phenomena—attributes it to and associates it with his Satanic Majesty. His driver pulls and shoves alternately on the lines and tries to soothe the frighted animal by roaring "Whoa boy! Whoa boy!!" When the paper has been safely passed, he pulls out a rawhide whip, and with an, "I'll teach you to shy!" he begins to belabor the now thoroughly frightened animal. The horse attributes the whipping to the object that frightened him, and the next piece of paper he sees frightens him so much the more. This is not mere theory. I have seen it tried time and again, and always with the same result. Above all things, if you cannot whip a horse without losing your temper, do not whip him at all. But little satisfaction is to be derived from whipping a dumb brute for what was, after all, partly its master's fault. For every horse is, to a certain extent, what some man has made him.

ROTARY.

Judging Dairy Bulls.

RUDIMENTARIES, MILK VEINS, ESCUTCHEON, AND COLOR SIGNS.

BY F. S. PEER.

Replying to a correspondent, who says in the *Jersey Bulletin*, March 14th: "I wish Mr. Peer would tell what are his methods in selecting animals, especially males. I judge he pays no attention to color of ears, escutcheon, rudimentaries, etc." I may say in reply that I judge on points as far as I am able to give a reason for them. As soon as they lead to guesswork I stop.

RUDIMENTARIES.

I am not able to give any good reason for considering rudimentaries, nor have I ever heard anyone attempt to give one founded on facts, why one bull with rudimentaries half an inch long was a better stock-getter than one whose rudimentaries were ⅜ of an inch long or simply scars. I remember hearing a judge's apology for awarding a certain ungainly-looking bull a prize: "Oh, but you ought to have seen his rudimentaries, never saw the like of it in my life, nearly an inch long." I ventured to ask what that indicated. "Well—well—it's a good sign," and that was all the answer I received—no reason, only a good sign.

It's a good sign also when you see 13 geese walking in a row all toeing in. I have heard it was a sure sign the children would have the measles light during the coming season.

No. Mr. Dickerman is right; I do not select bulls by signs; I want something a little more tangible. It is safe to say that for the last twelve years I have judged an average of a hundred bulls a year, and in going among the herds in England, Scotland, Jersey and Guernsey, I have had splendid opportunities of observation. I have followed the question closely and have no hesitation in pronouncing it a fad with no foundation of fact.

When you find a bull that is getting cows with good, well-placed teats and are large milkers, look up the sire, and when you find them repeatedly, as I have, with scars instead of rudimentaries, you will begin to lose faith in signs. Some of the worst shaped udders and teats I ever saw were the daughters of a Guernsey bull with long, well-placed rudimentaries. I do not mean to say that long rudimentaries are a sign of a poor-shaped udder. I do not believe the length or placing of the rudimentaries has anything whatever to do with it. If they must take it for a sign, I would as soon take it for a bad as a good one.

MILK VEINS.

I have often found the richest milkers, and many of the largest milkers, instead of having two large tortuous milk veins on the belly, have numerous small veins there and on the udder. I remember seeing some Holsteins at Mr. T. G. Yoeman's farm in Walworth that were giving nearly a hundred pounds of milk a day with milk veins no larger than are often found on heifers with their first calves. I have seen many Ayrshire cows that gave 60 pounds of milk and over a day, with veins of very ordinary size and but few of them externally. I have no way of knowing how many veins are leading to a cow's udder that do not show on the surface. A small, active gland can do more work than large, sluggish ones.

ESCUTCHEON.

This is a subject I have studied with great persistency and one that also fails too often to be worthy of serious consideration. I have read every work published on the subject, but I would never condemn a bull, that suited me in other respects, because he lacked an escutcheon. When we raise a bull calf out of a 22-lb. cow by a prizewinning sire out of a 20-lb. cow, and he has neither escutcheon nor rudimentaries, and a scrub bull out of a worthless heifer has a full flanders escutcheon with thigh ovales and all, it ought to teach us a lesson, but it seldom does. We want to see the sign.

COLOR.

This is another uncertain sign. It comes and goes. It depends upon the condition of the animal. It is invariably more noticeable in animals that are on the gain. Dry cows as a rule exhibit more color than the same cows in milk. Color continues to glow in an animal as long as she is thriving or until she reaches her bloom. A change of diet, a day with looseness of the bowels, a sudden exposure to cold or storm, indigestion, and it fades like a flower.

Again it has been proven over and over that color is no indication of butter-fats. My advice is to look for it in the milk and not in the ears, and when you do, you will find it is not at all in proportion to the color in the ears. I think the reverse is more nearly correct; at least, it often happens that cows with the lighter colored ears give the higher colored milk.

In judging Guernseys it is a point the club wishes to encourage. Therefore, in judging Guernseys, color must be considered and breeders have to take their chances. The color may be there when

they started from home and gone when they come before the judge in the ring.

All of us doubtless inherit from our superstitious ancestors of old testament times, a fondness for looking after signs. The relics of prehistoric ages cling to us all more or less, "and they must have a sign." We come to believe in signs because we want to. Exceptions to the sign teach us nothing.

Two years ago I went to Nova Scotia on a shooting trip. I called at a settler's shanty. "There," said the housewife, "I told my daughter only yesterday—didn't I, Mary?—that if we didn't get around to it and black that stove on Monday, someone would surely come before the week was out—it's a sure sign. I never knew it to fail."

I knew then why it was I had travelled over a thousand miles by sea and land and had tramped through forty miles of forest to this settler's shanty. It was that the prophecy might be fulfilled and the sign that never failed might come to pass.

I look upon rudimentary, milk vein, escutcheon and color signs as signs and nothing more. They are poor and flimsy things to lean upon in judging the merits of bulls. A scrub may possess them all, and the best bull—the best sire—have none of them.

In my next letter I will call attention to the principal points about a bull that decides me in his favor.

Swine Feeding.

[By J. H. Grisdale, Agriculturist, Experimental Farm, Ottawa. Read at Live Stock Conventions.]

In no class of live stock in Canada during the last five years have such great onward strides been made, if we may judge by numbers, as in swine. As the pork-packing industry develops more and more, swine must be kept, and more and more does it become necessary that we study the conditions which surround us, the methods of feeding and the feeds best fitted to give us good returns for our investments. The feeding problem is with us of very much more importance than with our United States cousins, since ours is a more critical and fastidious class of customers, the great middle class, and aristocratic Englishmen. The quality, finish, flavor and appearance of our product must be just right or he spends his money elsewhere and we are left to console ourselves as best we may. Feeding being our most serious problem, it is eminently fit that we discuss it fully to-day.

Since "swine feeding" may be expected to mean the feeding of breeding and young stock, I shall first say a few words on that part of the question. To insure good healthy litters it is essential that the sow be properly nourished. A plentiful ration of bran, shorts and oats, and roots, is well fitted to sustain both herself and the young she bears. As farrowing time approaches, and for some few days after, the ration should be decreased. Once safely past that critical period, a heavy ration of bran, shorts, crushed oats, and milk, if available, is best suited to supply the milk her offspring demand. The young pigs should be early taught to eat. This may be done by placing a small trough in the enclosure. For a few days a small supply of warm new milk might be placed in the trough; and later, skim milk warmed to blood heat. In two or three weeks, or even less, some shorts or oatmeal might be added to the milk. Great care must be taken to keep the trough scrupulously clean. It should be washed thoroughly every day. If the young are dropped in winter, it is well to give them a few sods to tear up in their pen. The roots and earth appear to serve the important ends of supplying vegetable and mineral matter *so* necessary to the health and development of young animals. By pursuing this, or some similar method of feeding the young, they will at from seven to nine weeks be weaned. Care should be taken at this time to reduce the sow's ration, especially the bran, shorts, oats, and milk. Much of the trouble experienced in raising pigs arises from the feed and care given the sow. If these are what they should be, no sickness is likely to occur in the young. Do not feed the same mixture for long to either sow or young. Variety in feed aids digestion. Once the pigs are weaned, if we are to hope for much profit, it is essential to get them to a weight of, say 100 lbs., without much expense. If in summer, this can be best done by letting the youngsters run on pasture, feeding them a small amount of bran, shorts or oats to help them along. In winter, excellent gains may be made on a ration consisting almost exclusively of roots. If the pasture has to be on seeded land, a good crop, we have found, is oats and peas equal parts, while rape cannot be surpassed. The great aim during this first period should be to secure a good growth, rather than to put on fat. Any check suffered in growth is likely to bring disaster at a later date.

The practice of finishing pigs off on grass or pasture is one which has not met with great success where quality was the chief aim, but it is most economical.

FEEDING PIGS ON RAPE.

On August 2nd, 1899, two lots of six pigs each were placed on a rape plot of about one-third acre. This rape had been sown in drills on May 20th, but, owing to wet weather, had made rather poor growth, and so was only about 15 inches high at date of turning in the pigs. For some time after their introduction they failed to eat much of the crop, especially the younger lot. Very little grain was given, however, and finally both lots fed heartily upon the juicy young plants. The growing rape was pretty well eaten down by Oct. 1st, and from that date till Nov. 30th an allowance of 4 lbs. of rape per pig was fed daily from another field. The five remaining after Nov. 30th received as much mangolds as they would eat, about 4 lbs. each daily.

The following table gives the particulars as to increase and daily rate of gain:

Lot No. 1.	First weight.	Last weight.	Gain.	Days fed.	Daily rate of gain.
No. 81	59	176	117	119	.97
No. 82	69	190	121	119	1.02
No. 83	56	180	124	119	1.04
No. 84	84	190	126	119	1.06
No. 85	76	191	115	119	.97
No. 90	59	173	114	119	.96
Total	383	1100	717	119	*1.004
Lot No. 2.					
No. 86	32	165	133	148	.90
No. 87	32	190	158	148	1.07
No. 88	30	161	131	148	.89
No. 89	38	170	132	148	.90
No. 91	54	202	148	148	1.00
Total	216	923	717	148	*.95

*Average rate of gain.

One pig in lot No. 2 died after being fed for 35 days. The pigs in lot No. 2 appeared to be too young to introduce upon rape, as they did not thrive for about a month after being confined in the lot. The dew or moisture from the plants seemed to affect them, causing their skin to crack. Lot No. 1 was not affected in the same way.

Below is a statement of cost and proceeds of 11 finished hogs:

11 pigs at $2.00 average	$22.00
Rent of lot	2.00
3,000 lbs. rape and roots at $2.00 ton	3.00
4,402 lbs. meal at $1.00 cwt.	44.02
	$71.02
Proceeds of 1,988 lbs. pork at $4.50 cwt.	$89.46
Net profit	18.44

It was, of course, impossible to determine the quantity of rape grown on the lot, so a rental of $2 is charged for the one-third acre.

Pig No.	Live wght.	Dress wght.	Per cent. dress.	Date killed.	Yard Criticism.	Quality of pork.
81	176	128	72.7	Nov. 30	Straight	Poor
82	190	136	71.6	"	"	Fair
83	180	133	73.9	"	"	Very poor
84	190	136	71.6	"	"	Very poor
85	191	144	75.4	"	"	Fair
90	173	125	72.2	"	Short	Poor
86	165	125	75.7	Dec. 29	Straight	Good
87	190	137	72.1	"	"	Very good
88	161	118	73.3	"	"	Very good
89	170	121	71.2	"	"	Very good
91	202	147	72.7	"	"	Good

The date of killing is given in each case, since, though all were treated in the same way till Nov. 30th, after that date the remaining pigs were fed roots instead of rape. It will be observed that the lot killed Dec. 29th were all firm in quality, any one of them being superior to the best in lot No. 1, killed Nov. 30th.

PRODUCING HARD PORK.

The problem of producing hard pork is one which is receiving much attention at present. At both Guelph and Ottawa a number of experiments have been conducted, or are in progress at present, to determine, if possible, the causes which go to induce variations in the quality of the pork.

A great amount of data has been secured, but no fixed conclusions can be said to have been reached yet. The individuality of the animal appears to have more to do with the quality of its flesh than the feed put into him, provided, of course, he is fed a fairly balanced ration. The question of hard and soft pork is one which is too often mixed with "thick" and "straight" carcasses. The percentages of softs among "fats" seem in our experience to be less than among "straights" or "selects." From this and other points I have observed, I am at present inclined to think that maturity or ripeness of the pig has a very great deal to do with the quality of the meat.

We have found that the animal that made a good thrifty growth from start to finish has almost invariably proven to be of superior quality; while the animal that was rushed to the required weight, or brought to it too slowly, has in many cases proven soft. We are near the completion of an extensive experiment at Ottawa to ascertain the causes of this defect in our pork, and parts of the flesh of each pig are being analyzed by our chemist, Mr. F. T. Shutt, to determine, if possible, the component parts whose absence or presence go to influence the quality of the meat. There is, however, no doubt that feed is an important factor in the character of the flesh produced, and very marked effects follow on the continued use of certain feeds.

The important point is to feed a good growing ration, strong in protein or flesh-forming materials, as well as rich in bone food.

PREPARATION OF FOOD.

The preparation of the food for swine is a question which is always with us. While varying conditions may somewhat modify the practice best suited for economical pork-production, still most reliable data seem to point in the same direction—that is, the feeding of all grain ground and dry or whole and soaked. This has been found to be the case in a number of experiments at Ottawa, and last spring in an experiment with 12 pigs divided into three lots of four each, we found an advantage of about five per cent. in favor of ground as compared with whole grain. Another point brought out in the same experiment was the economy of feeding a limited ration rather than an unlimited one, a saving of about eight per cent. being effected by careful feeding.

The cooking of foods has been found to neither improve nor injure foods to any great extent, save potatoes, which we have found to be of very little value unless cooked. It may pay to cook some part of the feed for the sake of the effect upon the animals under certain conditions, as, for instance, feeding warm feed when the weather is very cold.

A ration that we have found economical is composed of oats, peas and barley, equal parts, and as much corn as of the three others. This, when supplemented with skim milk and under favorable conditions for development, has never failed to give us good returns. Skim milk holds a high place as a feed for hogs, and the quality of the meat seems to be uniformly improved by the addition of this by-product of our dairying industry. It is almost essential to the proper development of our young pigs, and is a most valuable adjunct to grain feed in fattening stock. It seems to act as a stimulant as well as a food, for where small amounts were fed daily excellent results were obtained. To give an idea of what I mean, let me quote from a bulletin recently published by the Department of Agriculture at Ottawa, compiled by myself.

These facts are obtained from a large number of experiments:

No. of swine in test.	Skim milk consumed per head per day. Lbs.	
4	2	1 lb. corn, equal to 1.83 lbs. skim milk.
31	3	1 lb. mixed grain, equal to 3.23 lbs. skim milk.
4	5.4	1 lb. mixed grain, equal to 5.38 lbs. skim milk.
4	13.6	1 lb. frosted wheat, equal to 7.91 lbs. skim milk.
5	15.7	1 lb. mixed grain, equal to 7.34 lbs. skim milk.
2	17.1	1 lb. mixed grain, equal to 8.82 lbs. skim milk.
2	23.7	1 lb. mixed grain, equal to 7.76 lbs. skim milk.

Generally speaking, skim milk may be said to be worth one-sixth to one-fifth as much as an equal weight of mixed meal.

Cost of the U. S. Dog Plague.

Throughout many sections of Canada the greatest menace to the progress of the sheep industry is the nocturnal-roving canine. The Provincial Legislatures are being urged to enact much more stringent laws that will materially lessen the losses from sheep-worrying and give sheep-raising a degree of security which at the present time it does not enjoy. It is strong evidence to the FARMER'S ADVOCATE of the intrinsic merit of the industry that it flourishes as it does against such discouraging odds, and if freed from this incubus, that it would make astonishing strides is beyond question. Many villagers and other people, who can ill afford to do so, harbor one, two, and sometimes more useless curs, little thinking what the cost of their maintenance amounts to, or perhaps not caring so long as the brutes feast on their neighbors' flocks. The following from a Pennsylvania correspondent of the *Country Gentleman* gives some idea what it costs the country to keep dogs:

What it costs to board a dog for a year is not so hard to ascertain. The lowest price ever paid by sportsmen in the towns for boarding their dogs is 50 cents per week. Allowing that there is a good profit to the kennel keeper, we will call the actual cost of feed 25 cents per week (or about one cent for each meal); the average cost of keeping a dog for one year will amount to $13. Mr. G. W. Kinney, of Missouri, says: "The amount of food required to support a fair-sized dog will keep a hog in good thriving condition, which at 12 months old will be worth $12." The writer sold a pig last fall which was only 7 months old for $13.68. If we call the average cost of feeding dogs only $10 a year, the cost of feeding 7,000,000 will be $70,000,000.

The number of sheep killed by dogs, and their value, are known in one or two States. In Ohio, according to the returns of the assessors, the number of sheep killed by dogs during ten years was 357,154, and their value, which was paid by the State, was $1,029,698. The number injured, but not killed, was 233,745, valued at $340,509. Total average loss per year, $137,019. In Iowa, in 1866, the assessors returned a loss of $82,616 from sheep killed by dogs, the total number of sheep in the State being 1,598,226. The same ratio would make the loss in the United States $2,080,000, not counting the damage from maiming. The report of the Department of Agriculture for 1868 makes the loss from sheep killed by dogs in the United States every year at $2,000,000, and from maiming about $1,000,000.

In making up the final account, we charge the dogs in the United States as follows:

Annual board bill	$ 70,000,000
Value of sheep killed per annum	2,000,000
Value of sheep maimed	1,000,000
Total cost of dogs	$ 73,000,000

This takes no account of the cost of hydrophobia, of which they are producers and diffusers. Seventy-three million dollars is the interest, at 6 per cent., on a capital invested in dogs amounting to $1,216,000,000. Are all the dogs and their owners in the United States worth that much? Are we not "paying too dear for the whistle?"

The Combination Stock Sales.

To the Editor FARMER'S ADVOCATE:

SIR,—I have read with considerable interest the discussion, pro and con, in the ADVOCATE, on the question of the proposed combination sales, and while I think some very good arguments have been brought out on both sides of the subject, I do not think it has been fully exhausted, and with your permission I will take a hand in it, and will endeavor to be brief, lest I exhaust your readers. In the outset I wish to say that I trust you will not caricature me in the heading of my letter as you did Mr. Linton, of York County, in his, for however appropriate the caption may have been to the tenor of the letter, I can hardly think he would choose to be represented in a cartoon as going out with his little tin pail to "milk the Government cow," though I do not know who has a better right to milk that same cow, and what's the matter anyway with his proposition "to get all the money out of the Government you can and ask for more?" Don't they all do it? And what's the money there for but to be spent? And why shouldn't the leaders in this great national movement for the uplifting of the great live-stock industry of this country have a share of the public money to pay their travelling expenses and hotel bills while on their philanthropic mission in the interest of the small breeders? I think those who know the mover of the famous resolution at the Shorthorn breeders' annual meeting, declaring for stock sales under "Government supervision," and who heard his appeal for aid to the small breeders, had little difficulty in believing that they were not crocodile tears that shone in his eyes as he pleaded, but were convinced that he has lost much sleep and some hair from worrying over the disabilities of the small breeders, and they will have little sympathy with the one very small breeder in a back seat who "winked the other eye" and whispered the suggestion that he was "playing to the gallery."

It seems to me that with such influential breeders at the head of this movement as Mr. John I. Hobson, president of live stock associations too numerous to mention; Mr. Arthur Johnston, who has repeatedly shown his ability to move 'most any resolution that is placed in his hands; Mr. Wm. Linton, son of his father; Lieut.-Col. McCrae, and Col. John A. McGillivray, Q.C., ex-M.P., under the command of the Dominion Live Stock Commissioner as field marshal, there should be little difficulty in believing that, in the words of Mr. Linton, "success from the very commencement is assured," as these are known to be men who have demonstrated their willingness to spend and be spent for their country's good, and cannot be said to be affected with an itch for office, or even to care to hear the sound of their own voices in public, as some of them have modestly declared.

Fears have been expressed that the first sales of the proposed series may not be very successful, but that they will improve as the people gain confidence in them. Now, I do not look at it that way. It is not the *first* sale I am concerned for, but the *last* one. I am informed that precautions were taken before the proposition was made public to get a number of breeders pledged to send at least one good animal to the first sale to give it a respectable appearance, and as people generally keep their pledges, it is reasonable to expect the stock will be forthcoming unless the breeders "boggle" at the model set of rules which has been prepared and submitted to them, as a condition of the Government grant being given, one of which stipulates that every animal entered "must be sold to the highest bidder." I do not know whether they had contemplated such a serious condition as that—it is so unusual a feature in auction sales. Another serious rule is that "there shall be no by-bidding, either by the owner or anyone on his behalf." I wonder if the present generation of breeders know what that means. I had thought it was out of date, and that the compound word, by-bidding, was obsolete. I understand some thirty years ago it was quite common, especially in a certain county in Ontario, by certain breeders in that district who used to hold occasional auction sales, to put in italics in the announcement in their catalogues, "*there will be no by-bidding*," but it got to be a by-word, in that there was said to be more *by-bidding* than *buy-bidding* at the sales held by those people, and they had to quit holding such sales, for the reason, I suppose, that the public had lost confidence in their being *bona fide*. But though there have been no auction sales of any account in that county in the last 25 years, I think it is safe to say that in no other district in the Dominion in that time have so many good cattle been sold at as satisfactory prices by the ordinary process of private contract, and it is difficult to realize that the best breeders in that section have felt that they have suffered for want of auction sales, and especially of the combination sort, and yet, if the reports published are correct, it was a leading breeder from that district who, at a recent meeting in Toronto, in touching words and impassioned tones pleaded for this class of sales to relieve him from the "humiliation" of under-bidding his neighbors in trying to make sales of his stock in the ordinary way, and who, strange to relate, enjoys the reputation of being one of the best salesmen in the country.

It seems to me that anyone with ordinary perception ought to be able to see at a glance, with half an eye, that it will be a great improvement to have our business done for us by Government officials. It so nearly realizes Bellamy's dream of the good time coming, when the State will take over all the business in the country, and pension all business men before they become bald-headed. It will surely be a great relief of the strain upon the mind of having to make one's own sales, when all the breeder will have to do is to keep his stock till the end of the year, send them to the machine and have them put through while you wait, pocket your check, pay your freight and hotel bills and be happy, the Government paying the outlay for auctioneers, advertising, printing, etc., and the bills of the officers at the "Grand Central."

Reverting to the use of the term by-bidding, I do not remember having seen it in a sale catalogue for 25 years till this spring in connection with a sale of Shorthorns held near Guelph, and now we have it in the model rules prepared for the combination sales. I don't know how others regard it, but I confess it always makes me feel a little suspicious when I see such an announcement. It savors so much of wearing of the old flag on the breast to convince the world that you are true to Queen and country. I think a fine sense of honor would lead one to leave it to the world to judge of our honesty or loyalty by our life, but it may be merely a matter of taste, and there is no accounting for tastes, as the lady said when she kissed her cow—no doubt it depends a good deal on the breed or the breeding.

Col. McCrae, in advocating the combine at the Toronto meeting referred to, I am told, frankly admitted that although the first of the sales held at Guelph under a local breeders' organization was fairly successful, the last was not so, as he bought some of his animals back after the sale, paying from $10 to $25 advance on what they were sold for. Of course that is perfectly legitimate, but not every breeder would enjoy that way of doing business, except in the sense in which a person is said to "*enjoy* bad health." But I have it from one who knows, that not all the contributors to that last sale were as honorable as Col. McCrae, as a friend of his, not a breeder nor a farmer, who was present was asked by one whose cattle were going at slaughter prices, to do a little by-bidding for him, which out of kindness he did, but, in the babel of three auctioneers selling at once in the same building, he made a mistake in the number of the animal, and to his consternation found that a bull belonging to another contributor was knocked down to him. The latter breeder being an honorable man, who felt that he had a character to maintain, could not or would not understand the explanation; indeed, I doubt if he could have been induced to take $10 or $25 to have had the animal seen on his farm after the sale, and he shipped the bull to the buyer, who had no more use for a Hereford bull than the man in the moon, and was the butt of the jokes of his friends for some time after.

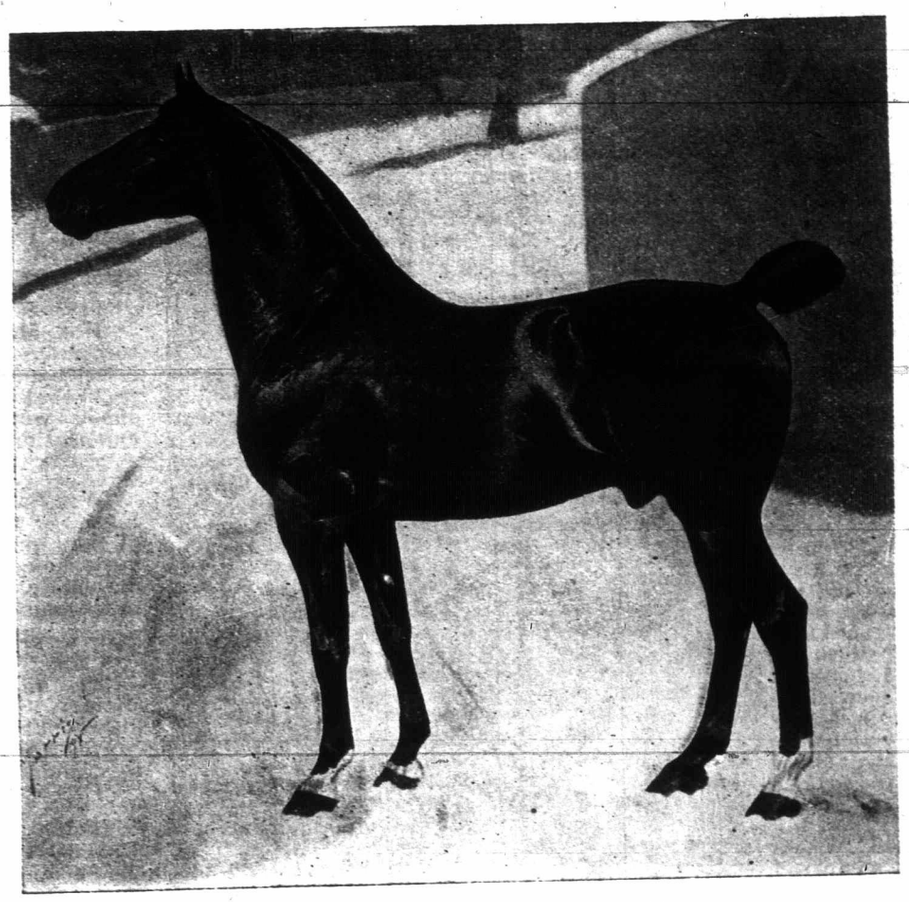
It was, I believe, at the last of the Toronto sales under the supervision of the Breeders' Association, that registered Shorthorn cows sold for $35 "a skull," and yearlings at $13 apiece, but of course there were no inspectors under that arrangement to visit the farms and to see that the "critters" offered were put through the fanning mill before being accepted. That will not happen under the new regime, for has it not been intimated that such eminent expert judges as the president and second vice-president of the Shorthorn Society are to be appointed inspectors, salary not stated, to travel through the country on free passes, and to be supplied with long rubber boots, and blue jean overalls with bibs on, to pronounce upon the animals offered as to whether they are eligible in type and breeding, and sound in wind, limb and waterworks. It has been suggested that these gentlemen, being magistrates, be given a roving commission (even if a special Act of Parliament be necessary) and empowered to take evidence, in a fence corner, a cow byre, or any place, as to the cows entered for the sale having been properly served on a given date by a registered bull of the same breed, and that they shall keep a record of the movements of the said cows after the sale to ascertain whether they produce offspring at a date to correspond with the date of service given. This, I think, is a very important point to be guarded, for it was at the last of the Toronto sales, I am informed, that a young breeder was congratulated on getting great bargains in three fine-looking heifers said to be in calf, the date of service some months before being given, but the young breeder was not so elated when he sold two out of the three to the butcher the next year, as being hopelessly barren.

It was, I believe, at that last sale, too, that a small breeder who had brought cattle to the sale, paying heavy freight bills, was so discouraged at the end of the first day on account of the wretched prices that were being obtained, that he proposed to sell out privately to a big breeder and go home. He was offered a mean price and accepted it. The cattle were run through the sale next day in the name of the original owner, the second owner bidding on them, with a decoy bidder or by-bidder to bid against him, with the understanding that by a system of wireless telegraphy he was to stop at a given sign. A small breeder seeing a big breeder bidding on one of the cows, concluded she must be a good one, and put in his little bid, when something dropped, and he found she was his at a price which left the big breeder two other animals for practically nothing. But the decoy-duck thought it too good a thing to keep, and some time later "quacked," with the result that for a time there were "strained relations" between the second and third owners. But of course that class of big breeders are all dead, and all this sort of juggling will be done away with under the new dispensation, for we shall be working under a model code of inflexible rules, the ninth and last of which is that "the Live Stock Commissioner may decide in any case whether or not all or any of the required conditions have been complied with, and *his decision shall be final*," "a man," to quote Mr. Linton again, "eminently qualified for the position." This should surely dispel all doubts and quell every fear.

It will doubtless be reassuring to the little breeders to know that the leaders will not monopolize the sale, but are willing to limit the number of animals they shall enter. This, of course, will be no great sacrifice for some of them, who own no stock, but to others it will be a real deprivation, and such unselfishness can only be compared to that of Artemus Ward, who generously consented that all his first wife's male relations should be given the privilege of enlisting for the war before he claimed his right to bleed and die for his country. Indeed, some of the leaders have, I am told, gone so far as to state their willingness to pledge themselves that they will not mention to prospective buyers at the sale the stock they have at home till the last animal in the combination is sold, and will not even give or show their private catalogues of stock, as the manner of some is at private breeders' auction sales, except it may be in a very extreme case, when they will invite the party behind the barn, and caution him to put it in his inside pocket.

Allow me to state that I think there is not much to fear from the bogey which some one has trotted out, that this thing may lead to political scandals. Is it not true that most of the leaders are in loving sympathy with the Government, and what object could they have in getting the Minister into a mess? And, anyway, will someone please rise and explain what politics has to do with the price of pork. It is comforting, too, to know that the Live Stock Commissioner is reported as having denied the rumor that the tuberculin test would be applied to cattle entering for the sales, and I presume it will be so advertised, so that any buyers coming from the United States will understand that they will have to assume the risk of that test themselves.

BREEDER.



BARTHORPE PERFORMER (5097) 237.

Imported Hackney stallion to be sold in dispersal sale of Hillhurst Hackneys, at Toronto, April 28.

PROPERTY OF HON. M. H. COCHRANE, HILLHURST, QUE. (SEE GOSSIP, PAGE 242.)

A Stiff Tax on Dogs.

SIR,—It appears to me unjust to ask any Government to legislate on sheep-killing dogs until we can show beyond dispute that we have done our duty, and that little word, duty, means more than we always do. Our first duty then as sheep-raisers is to bury our dead sheep and lambs. I fancy I hear someone saying, "We do bury them." Well, I know there are a great many that do not bury them.

Our next duty is to feed our dog. It is a great mistake to think a dog can live on the wind, for they are sure to want some mutton mixed with it. Let us treat our dogs as members of our family. Let us keep our dogs closed up or tied at night, for I don't think there is one dog in a thousand will attack sheep in the daytime. Let us count our sheep every day at least once, and oftener if convenient, and be sure that they are not dead before the dogs kill them.

We have been raising sheep now for thirty-nine years, and have never had any killed by dogs. Catching dogs eating a dead sheep is no proof that they have killed it. We have lost a number of sheep by their getting over on their back and being unable to turn over and get up again. The only remedy we know for this is to keep them well watched. It is always in the summertime we lose them, and in no case have we ever found them to be touched by a dog, and they are on a farm summer and winter that there is no one living on, one mile from where we live and three miles from a village. There is no nobler animal in the whole brute creation than the dog, if used right, but there are so many people that keep useless mongrel curs that have no more use for them than a wagon would have for a fifth wheel. If those people could be persuaded to keep a pig instead of a dog they would find at the end of the year that the pig would be the more profitable. I can see no way to get that class of dogs choked off but by a good stiff tax, nothing less than ten dollars, and let us have that much less to pay on something else; but on no account should it go to insure any man's sheep.

Re the article in last ADVOCATE, on Sheep-killing Dogs, I have no sympathy with such half-hearted farmers who give up keeping sheep on account of the vexatious evil. I would house my sheep every night in the year rather than give up the pleasure of having them, saying nothing about the profit. I fear sometimes when we talk about the Government, we imagine it is either at Ottawa or Toronto, when we are the Government, and the easier we make our country to govern, the more money it is in our pockets. WILLIAM WIGGINS.

Simcoe Co., Ont.

P.S.—We always keep our dog in the house in winter and tie him in the summer. We have to only rattle the chain and he will come to get tied. W. W.

Animal Portraiture.

Isaac J. Hammond, Greencastle, Ind., writes:—"During the past few years there has been a great improvement in animal painting and portraiture. This is especially true in the United States. Some of this work is very true to nature, and we feel that the artist was honest in his desire to reproduce the animal on canvas as near to life as he could approach. There are also artists in the field, and men of no mean ability, who are using their talents merely for mercenary purposes. Their productions are overdone, and one can readily see that the animal on canvas is more a representation of the artist's ideal or perfect animal, and is not true to life. At present, the camera is assisting to remedy these impositions of artists, breeders and stockmen. Whenever one of these overdrawn pictures is compared with a good photograph we find that the contrast is too great, and the model, which (with a few changes in coloring, etc.) served for either a Shorthorn or a Hereford, must give way to the negative true to nature. The careful breeder, in sending out an illustrated catalogue or even in placing a cut in an agricultural paper, should remember that these unnatural animals (although they may approach his ideal in form and symmetry) are impostors, and deceive our correspondents and intending customers, and are a source of more harm than good.

"I am pleased to notice that your recent work, 'Canada's Ideal,' is free from the above criticism, and I hope that you may ever continue in this line."

The Weaning of Pigs.

A common practice has been to allow the pigs to suck until they are six weeks old, and then they are suddenly weaned, and one or two pigs are left to keep the sow's udder from inflammation. That course has a tendency to stunt the pigs taken away; and when a pig is once stunted in its growth it hardly ever recovers what it lost. Pigs should be left to suck not less than eight weeks. They should have learned to eat with their mother. By throwing a handful on a clean place on the floor, when the pigs are three weeks old, they will begin to pick it up.

Then there should be a low and shallow trough in a part of the pen partitioned off for them, from which they can obtain warmed skim milk mixed with a little ground grain or shorts. If the young pigs can be turned out with their mother on a clover field before they are weaned, they will learn to eat it readily. They should be given a chance to take plenty of exercise even before they go out to clover. From the time they are weaned, a moderate supply of skim milk, buttermilk and green clover or similar feed will promote the growth of muscle, which becomes lean flesh.

Want of exercise and want of flesh-producing food during that period of their growth will prevent any breed of hogs from developing the fleshy qualities which are wanted in the market for bacon and hams. It is improbable that any kind of feed during the fattening of animals can result in producing a large proportion of lean flesh unless the animals are well grown during the two months which follow the time they are weaned. A pig should grow from the time it is born until it goes to the market for killing. Every day that it stands still lessens the profit which its owner might make out of it.

It will be found a profitable practice to have a small clover field for a pig pasture. If clover be not available, a fair pasture may be made of a small field of winter rye, or from a mixture of spring rye, oats and peas. The pigs should be fed, morning and evening, a small quantity of grain and about one gallon of skim milk or buttermilk to every three pigs per day. As a rule, under those conditions, it does not pay to feed a larger quantity of milk. If they have free access to a mixture of charcoal and salt they will not root the ground very much. If ringing is necessary, it should be done on each side of the nose. The castration should be done when three weeks old. CLAUDE BLAKE.

Elgin Co., Ont.

Periods of Gestation.

At the request of several correspondents we republish the following table, giving the periods of gestation for mares, cows, ewes, and sows:

Time of Service.	Mares. 340 Days.	Cows. 283 Days.	Ewes. 150 Days.	Sows. 112 Days.
Jan. 1	Dec. 6	Oct. 10	May 30	April 22
" 6	" 11	" 15	June 4	" 27
" 11	" 16	" 20	" 9	May 2
" 16	" 21	" 25	" 14	" 7
" 21	" 26	" 30	" 19	" 12
" 26	" 31	Nov. 4	" 24	" 17
" 31	Jan. 5	" 9	" 29	" 22
Feb. 5	" 10	" 14	July 4	" 27
" 10	" 15	" 19	" 9	June 1
" 15	" 20	" 24	" 14	" 6
" 20	" 25	" 29	" 19	" 11
" 25	" 30	Dec. 4	" 24	" 16
March 2	Feb. 4	" 9	" 29	" 21
" 7	" 9	" 14	Aug. 3	" 26
" 12	" 14	" 19	" 8	July 1
" 17	" 19	" 24	" 13	" 6
" 22	" 24	" 29	" 18	" 11
" 27	March 1	Jan. 3	" 23	" 16
April 1	" 6	" 8	" 28	" 21
" 6	" 11	" 13	Sept. 2	" 26
" 11	" 16	" 18	" 7	" 31
" 16	" 21	" 23	" 12	Aug. 5
" 21	" 26	" 28	" 17	" 10
" 26	" 31	Feb. 2	" 22	" 15
May 1	April 5	" 7	" 27	" 20
" 6	" 10	" 12	Oct. 2	" 25
" 11	" 15	" 17	" 7	" 30
" 16	" 20	" 22	" 12	Sept. 4
" 21	" 25	" 27	" 17	" 9
" 26	" 30	March 4	" 22	" 14
" 31	May 5	" 9	" 27	" 19
June 5	" 10	" 14	Nov. 1	" 24
" 10	" 15	" 19	" 6	" 29
" 15	" 20	" 24	" 11	Oct. 4
" 20	" 25	" 29	" 16	" 9
" 25	" 30	April 3	" 21	" 14
" 30	June 4	" 8	" 26	" 19
July 5	" 9	" 13	Dec. 1	" 24
" 10	" 14	" 18	" 6	" 29
" 15	" 19	" 23	" 11	Nov. 3
" 20	" 24	" 28	" 16	" 8
" 25	" 29	May 3	" 21	" 13
" 30	July 4	" 8	" 26	" 18
Aug. 4	" 9	" 13	" 31	" 23
" 9	" 14	" 18	Jan. 5	" 28
" 14	" 19	" 23	" 10	Dec. 3
" 19	" 24	" 28	" 15	" 8
" 24	" 29	June 2	" 20	" 13
" 29	Aug. 3	" 7	" 25	" 18
Sept. 3	" 8	" 12	" 30	" 23
" 8	" 13	" 17	Feb. 4	" 28
" 13	" 18	" 22	" 9	Jan. 2
" 18	" 23	" 27	" 14	" 7
" 23	" 28	July 2	" 19	" 12
" 28	Sept. 2	" 7	" 24	" 17
Oct. 3	" 7	" 12	March 1	" 22
" 8	" 12	" 17	" 6	" 27
" 13	" 17	" 22	" 11	Feb. 1
" 18	" 22	" 27	" 16	" 6
" 23	" 27	Aug. 1	" 21	" 11
" 28	Oct. 2	" 6	" 26	" 16
Nov. 2	" 7	" 11	" 31	" 21
" 7	" 12	" 16	April 5	" 26
" 12	" 17	" 21	" 10	March 3
" 17	" 22	" 26	" 15	" 8
" 22	" 27	" 31	" 20	" 13
" 27	Nov. 1	Sept. 5	" 25	" 18
Dec. 2	" 6	" 10	" 30	" 23
" 7	" 11	" 15	May 5	" 28
" 12	" 16	" 20	" 10	April 2
" 17	" 21	" 25	" 15	" 7
" 22	" 26	" 30	" 20	" 12
" 27	Dec. 1	Oct. 5	" 25	" 17
" 31	" 5	" 9	" 29	" 21

Argentine Cattle Prohibited.

Owing to the prevalence of foot and mouth disease in the Argentine Republic, the British Government has prohibited the importation of live cattle from that country into Great Britain, the order going into effect on April 30th. While this may have the effect of increasing the South American export of dressed beef, it is believed by many that it will have a decidedly stimulating effect on the present season's export of live cattle from Canada to Britain. The withdrawal of freight boats, for use in the South African war transport, has had a very prejudicial effect upon the outlook for trade across the Atlantic, and an effort is being made to call into service the vessels now shut out from the South American carrying trade. The reorganization of the Dominion Live Stock Association at Montreal has also been proposed.

COMMENTS ON THE PICTURE.

The Admiration of Britian and America.

A. J. LOVEJOY, Gen. Sup't, Illinois State Fair.—"I consider the engraving a masterpiece of workmanship; full of charcter and very lifelike."

J. DEANE WILLIS, Bapton Manor, Codford St. Mary, Bath, Eng.—"'Canada's Ideal' arrived safely. It is well done, both its execution and, as far as I can judge, its individual portraits."

HON. D. FERGUSON (Senator).—"In my opinion 'Canada's Ideal' is indeed a beautiful work of art in animal portraiture, and cannot fail in having an excellent influence on the minds of the young farmers of Canada."

I. P. ROBERTS, Director College of Agriculture, Ithaca, N. Y.—"It is a most emphatic and beautiful way of giving instruction in the breeding and feeding of live stock. It is a volume in itself. I trust that your people will appreciate it as highly as we do."

THOS. A. SHARPE, Superintendent Experimental Farm, Agassiz, B. C.—"'Canada's Ideal' is indeed a beauty, and worthy a frame in any breeder's library. It must be exceedingly gratifying to those who owned the animals to have them so splendidly illustrated."

WM. WARFIELD, Lexington, Ky.—"'Canada's Ideal' is hanging now over my head in my library, and makes a very handsome appearance among many very celebrated men and Shorthorns. I wish I was strong enough to write you more than this brief note."

F. D. COBURN, Secretary Kansas State Board of Agriculture.—"'Canada's Ideal' surely required a vast deal of work and study of the breed and the animals it represents. It is the most extensive affair of the kind that has yet come to my attention."

HON. M. H. COCHRANE, Hillhurst Farm, Compton, P. Q.—"This handsome picture of Shorthorns is well named 'Canada's Ideal,' and affords abundant proof that the Dominion is deserving of the place she has won as second only to Great Britain in the exportation of pure-bred stock."

WM. SAUNDERS, Director Central Experimental Farm.—"'Canada's Ideal' is one of the best things of the kind I have ever seen. The animals are all very choice representatives of the breed, and they are admirably shown in the plate. You deserve much credit for the good work you are doing."

PROF. THOMAS SHAW, University of Minnesota.—"The animals represented are a credit to any country, and they are beautifully sketched. The dissemination of such pictures cannot fail to convey more correct ideas as to animal form and to stimulate young breeders to aim still higher."

H. J. ELLIOTT, Danville, P. Q.—"Rightly named 'Canada's Ideal,' especially at the present time, when the Shorthorns are taking such a prominent place throughout the world, and should serve as a means of stimulating that standard of excellence amongst the breeders of Canada's live stock. I appreciate it more highly on account of my having the honor of being the breeder of one of the animals—No. 7—Robert the Bruce."

JAS. MILLS, President Ontario Agricultural College, Guelph.—"I look on this engraving as a valuable contribution to the stock industry of the Province at the present time, bringing prominently before the minds of students and others the pre-eminent value of the Shorthorn breed of cattle for the farmers of Ontario. I am inclining more and more to the opinion that Shorthorns, and well-selected Shorthorn grades, some for beef and others for milk, are amongst the most profitable cattle in this country at the present time."

HON. JOHN DRYDEN, Minister of Agriculture, Toronto, Ont.—"Both the readers of your paper and yourself are quite familiar with my conviction that one of the best means that can be used to encourage better production in our live stock is the presentation before our people as often as possible of what may be considered the correct ideals to which they should work. The most perfect living animal that can be secured is undoubtedly the best object lesson. The next best thing is to secure as good a portrait of the animal as possible. Your second picture of this character, called 'Canada's Ideal,' will be very useful in carrying out this idea. I have no doubt that the privilege of gazing upon the portraits of the animals therein presented will, in the days to come, be a means of stimulating and encouraging many of our young men to try to follow the guide thus presented, and thus aid, so far as they can, in the production of prime beef in this country."

Feeding Export Cattle at the Mount Elgin (Ont.) Industrial Institution.

(BY W. W. SHEPHERD, PRINCIPAL.)

During the past winter we fed 60 head of cattle, as follows: Commencing early in September with 20, we fed them 5 quarts chop on the grass for two months and finished them in the stables, and shipped the week before Christmas. The second load was fed one month on the grass, the same quantity as above. They were shipped about the middle of February. The third load went into the stables about the middle of November, had only been fed on the grass about two weeks, and were shipped March 26th. All these cattle were driven an average of one quarter mile each way to take their chop in stables, but got very little but the chop till they were taken in permanently. After the cattle were permanently stabled, they were fed 8 quarts of chop per head per day. The chop was a mixture as follows: Before grinding, 8 bushels of oats, 5 of western corn, and 3 of the best wheat. The results satisfied us that the wheat, although the most expensive, accomplished the most for the dollar. The chop was ground nearly as fine as flour. We found great advantage in feeding a mixture in preference to one sort of grain.

We cut hay, oat sheaves and cornstalks in equal quantities, adding one fourth of wheat chaff to the mixture. Next, we put two baskets of this mixture to one of ensilage, and mix well 24 hours in advance of feeding, and give the cattle all they would clean up by 9 a. m., with half the chop for the day. The second feed we gave after 5 p. m., the same amount of chop with half the quantity of the other mixture, which soon disappeared, followed by all the hay they could clean up by 8 o'clock. One peck of roots, turnips or mangels, just before each feed. The average age of the cattle when shipped was two years and ten months; average weight, 1,350 lbs., at the stables. The feeding was in box stalls, from 8 to 10 in a stall, with access to water and a small outside yard. The box stalls are just the thing if you have plenty of straw and ample space, but not otherwise.

Shearing and Washing Sheep.

After a careful investigation of the subject, we are convinced that, in the long run, it is more profitable to dispense with washing altogether.

We have secured better results by shearing our sheep during the first half of April than later in the season. This, of course, makes it impossible to wash sheep before shearing. We are satisfied that we can get not only a heavier average fleece, but also a wool of better strength from the same flock by shearing during the first half of April than by shearing in May or June.

If reasonable care is taken to keep the wool free from dirt and litter while on the sheep's back, then there is little to be gained by washing. By an examination of the wool-market quotations we note a class of unmerchantable wools. This class includes wools poorly washed. A large per cent. of our washed wools are sold as unmerchantable, at a price about equal to that of unwashed wools.

We should not leave this subject of washing without saying that if we could think the washing process an advantage to grower and consumer alike we would still think the custom of doubtful utility on account of injury to the sheep. Sheep are often roughly handled and not infrequently we believe more injury is done to the sheep than good to the fleece. The sheep will suffer no inconvenience from early shearing except for the first few days, if they are properly sheltered and protected from the cold, and more especially storms. The wool makes a rapid growth during the cool months of spring, and the sheep is not sweltering under a thick blanket of wool. In the latter case the sheep is not only uncomfortable, but the wool makes but little, if any, growth.

For several years, in a majority of instances, the eastern wool markets have been better in April than in June. This would give the grower who makes a practice of early spring shearing a slight advantage as to markets. HERBERT W. MUMFORD.

Michigan Agri. College.

Functions of the Horse Show.

It is needless to say that the rankest scoffer has never withheld the fact that the Horse Show has been a boon to the dealer of fine horses, and encouraged breeders as no other factor in late years has done. As the Horse Show increases in scope, the demand for horses eligible in classes at these events increases in a like ratio, until now it is not the question of *selling* a good horse, but one of *procuring* him to sell. This constant demand, and efforts to supply this want in the public, has done more than any one thing to strengthen and uphold the industry which for a time felt the decline attendent upon the short-lived interest in the bicycle. The newer fad of the automobile, being more expensive and not yet proven practical, has not reached that widespread popularity where it need be considered at all seriously as jeopardizing the scope of the high-class horse. Certainly it will be a very long time before the inanimate motor vehicles will supplant (either on the boulevards or in the showring) the pleasurable and everlasting exhilaration of dominating a highly-educated and intelligent animal. The Horse Show is in the height of its popularity and the height of its glory as a training-school of beauty and finish, and as the horse furnishes the *raison d'etre* for it all, the horse is a pre-eminent figure for many years to come in his field.—*Horse Show Monthly.*

Our Scottish Letter.

BIRMINGHAM BULL SALE AND LONDON HORSE SHOWS

Bull sales were tapering off when I last wrote, and the concluding event at Birmingham was quite as big a tribute to the Beaufort herd of Lord Lovat as those that went before it. The highest average priced bulls again came from this famous herd in Inverness-shire, and its record at the spring sales has been something to boast about. Three bulls from it at Inverness sale made an average of £126, three at Perth made £139 5s., and four at Birmingham made £257 5s. The average price of these ten young bulls was £108 9s. 6d. Six of them are descended on the female side from the Sittyton Broadhooks family, and all of them were got by Royal Star, a bull bred at Cromleybank, Ellon, by Mr. Reid. His sire was a Collynie bull, and his dam an Uppermill cow. It is thus Cruickshank everywhere in the ascendant, and 1900 will rank as one of the best spring sales for Shorthorn bulls ever held. The Galloway bull sale at Castle-Douglas was spoiled through an excess of moderate animals being presented, but the tops were first-class and made good prices.

The month of March is closing, and on the whole, March dust has been conspicuous by its absence. There has been an abundance of snow, sleet and bitter cold winds, but the dust which is supposed to be invaluable to the farmer was not much in evidence. As a result, farm labor is now behind, and all classes of farmers are anxiously looking for an alteration in climatic conditions. Let us hope the desire to see this may be gratified, and that ere this appears in print leeway will have been made up. The leading feature of the month was the London Horse Shows, three of which were held during the opening weeks of the month. The Shire horsemen had the first innings, and a good show was the result, while the spring sales have again shown high averages for high-class horses. In spite of the great boom in Shires amongst the wealthy nobility, it is a curious thing that most of the rank and file of breeders have got comparatively little good out of the boom. The Clydesdale trade, although less buoyant, is much more steady, and while we have no record of colts being sold at 1,500 guineas, as was the case with the junior champion Shire, there is a fine, healthy trade for Clydesdales, and at the Kippendavie sale, rendered necessary through the death of Colonel Stirling, an average of £83 2s. 10d. was obtained for eleven animals. One mare, "Brenda," made £152 5s., and a three-year-old filly named "Selina" made £162 15s. Canadian buyers have been in evidence during the past few days, and a shipment of half a dozen good Clydesdale stallions has left by the Amarynthia this week. They have been purchased by Messrs. McLachlan Bros., Guelph, Ont., and were selected by Mr. John Duff, Guelph, who accompanied Mr. McLachlan. A very good horse amongst them named King's Own was purchased from Mr. Riddell. He is a capital Canadian horse with plenty of bone and substance, and was got by the Cawdor Cup champion horse, "Royal Gartly" 9844, out of a specially well-bred mare. Three horses have been purchased from Messrs. A. & W. Montgomery, namely, Scottish Celt 10007, Montrave Florist 10240, and Reckoner 10864. These horses are bred for size and weight of bone, and their breeding is high-class. The first is a son of Macgregor and the second is out of a daughter of Macgregor, which sold by public auction for 400 gs., and has won many prizes. The sire of this Montrave horse is the £3,000 champion horse, Prince of Albion, and the sire of Reckoner is the big, powerful stallion, Mains of Airies 10379. Another well-bred horse, named Alfred the Great, has gone to Mr. James Moffatt, Teeswater, Ont. He was got by the celebrated Prince Alexander 8899, which sold when a yearling for £1,200, and was champion at the H. & A. S. Show when a yearling, and also winner of the Cawdor Cup when a three-year-old. After a somewhat weary period of comparatively poor trade there is a good prospect for Clydesdale breeders, and the recently-issued twenty-second volume of the Clydesdale Stud Book shows that renewed activity has been manifested in the entering of stock in the stud book.

Hackney breeding always excites lively interest in the London Agricultural Hall, and the show of this year was a great success. All the same, the opinion was general that the young horses were not equal to what they had been in some former years. The championship went to a fine animal named McKinley, owned by Mr. Harry Livesey, sired by Garton Duke of Connaught, and first last year at the H. & A. S. Show at Edinburgh. He is a tremendous mover, going with great force, and it was generally expected that he would win. The female championship and also the reserve championship came to Scotland to Mr. C. E. Galbraith, Terregles House, Dumfries, who has one of the best studs in Great Britain. He was President of the Hackney Horse Society last year. Mr. Galbraith's horses were splendidly brought out, and the champion Rosadora is a great mare—a daughter of the dual London champion, Rosador. The reserve champion was Queen of the West, a mare of superb quality, with great action, got by Garton Duke of Connaught. The most successful Scottish exhibitor after Mr. Galbraith, and in some respects even more successful than he, was Mr. Henry Liddell-Grainger, Ayton Castle, Berwickshire. Mr. Liddell-Grainger shows fine stock, and never shows anything but what is bred by himself. He has made quite a reputation for himself in this way, and there are few breeders of Hackneys anywhere who have had anything like equal success with animals bred at home. The other Scottish breeders of Hackneys did not get so far forward, but the north was quite worthily represented. The Hunter Improvement Show, which is the last of the London spring events, does not bulk so largely in public estimation as the Shire and the Hackney shows, but it is growing, and by combining with the Royal Commission on horse-breeding and the Polo Pony Society, a very good week's programme is made up.

Dairy farmers are greatly interested at present in the inquiry being held in London into the question of a standard for milk. At present there is no official standard, but the Somerset House standard of 2.75 per cent. butter-fat is accepted as the final court of appeal. Many farmers, although not all, are of opinion that their interests would not suffer were the standard made 3 per cent. butter-fat and 8.50 per cent. solids other than fat, and a great amount of evidence on the subject is being heard. The agricultural feeling, generally, is that the low standard of 2.75 leaves a considerable margin for the reduction of the quality of average farmers' milk, and it is clear that in a great many cases a much higher percentage of butter-fat than 2.75 is obtained from an average herd of dairy cows. Most milk from well-kept dairies of Ayrshire or grade Shorthorn cows will give 3.5 per cent. butter-fat, or even more, but there are cases in which at certain seasons of the year even 2.75 is not reached. It would be hard to penalize a farmer who was doing his best, and I fear the standard may be settled on a lower basis than some expect, just because those below the average must be considered as well as those above. A movement is on foot amongst dairy farmers in North Ayrshire to force up the price of milk. They are certainly not being paid a fair price, when the general figure is 6d. per gallon in summer and 8d. per gallon in winter, and Essex farmers have shown what can be done towards raising prices by forming a dairy association wrought on sound principles. Whether Scotchmen will be equally successful remains to be seen.

"SCOTLAND YET."

FARM.

Uncut Corn in a Stave Silo.

During the month of August, in 1897, I built a stave silo sixteen feet high and fifteen feet in diameter, large enough to contain the corn from a six-acre field. When the time arrived for filling the silo I secured the services of a two-horse power and cutter, hired two or three extra teams and a large gang of men, and started to work. We filled it all right, but I was out of pocket about $16 for extra help at the end of the job. Most of the ensilage came out in good shape, although there was some waste near the top, around the edges.

In the fall of 1898 I was unable to obtain the same cutter which I used the year before, so I scoured the country far and near in a vain endeavor to find another, for I did not care to invest money in a power and cutter for so small an amount of corn. At last I gave up the search in disgust and decided (knowing that others had preceded me) to put the corn in whole. One team, two wagons and four men, all told, filled the silo in less than two days, but there were yet two acres of corn standing. As it settled in the silo, my man and I added more corn, until we had nearly the whole six acres in the small compass of our big tub. I placed it all myself, laying each layer at right angles to the previous one. On opening in November we found the center all right, but around the edges considerable corn was spoiled. That taught me a lesson; I had not kept the edges high enough, and had been too lax in the treading process. As near as I could calculate, my loss of ensilage was not equal to the extra cost of hiring a cutter, so I decided to try again with whole corn. This year we have made a complete success of it. It was put in in layers as before, but great care was taken to keep the sides high and well trodden down. As long as any perceptible settling took place, this tramping process was continued every morning; then it was covered with wet straw and tread every morning for several days more.

We are now feeding this ensilage, and it is the best we have ever had, in spite of the fact that it was frosted severely before cut. The stalks are all eaten by the cattle, and ears as large as your arm go down, husks, cob and all. It is more quickly handled than cut corn, although some men might object to soiling their fingers, for it is not easily handled with a fork. No cutting is required to get it up if the layers are taken as they were put down.

Missisquoi Co., Quebec. CHAS. S. MOORE.

Manager Hill Goes to Europe.

Manager Hill, of the Toronto Industrial Exhibition, leaves for Europe the end of this month, on a two months leave to visit the Royal Agricultural Show and others, and the Paris Exposition. He will visit all points of interest in Europe, where any practical knowledge can be gained that will enable him to add new features to and otherwise add to the importance of the Toronto Fair. We wish him a successful and pleasant and profitable trip.

Clover as a Fertilizer.

[An address delivered before the Farmers' Institute at Portage la Prairie in February, by Frank T. Shutt, M. A., Chemist of the Experimental Farms.]

The subject that I have been asked to address you on this afternoon is the maintenance of soil fertility by the growth of clover. It is a subject that has engaged our careful attention for some years past at Ottawa, and which for the last two years has also been investigated at the branch experimental farms, so that now we can present to you a considerable amount of reliable data, all of which go to show the great value of clover as a soil improver.

In conversation with many of your best and most observant farmers, I learn that the soils of this Province that have been successively cropped with wheat for a number of years now show a marked decrease in yield. This is only to be expected, for you have annually been taking plant food from the soil and returning none. We have pursued an irrational course of farming, neglecting—entirely losing sight of the fact that soil is not inexhaustible. It is quite true that our crops take a large proportion of their nourishment from the air, but it is just as true that they also draw upon the soil for a necessary part of their food. This food must be replaced if the soil's fertility is to be maintained.

Let us briefly review a few fundamental principles. What is the nature of a plant? It is a living thing, because it can increase in size, in weight, and reproduce its kind. As a living thing it requires food; it cannot create anything. What are the sources and nature of that food? The sources are the air and the soil. From the former the plant abstracts a gas known as carbonic acid (a product of animal life), which, by means of the green coloring matter in the presence of sunlight, is converted into starch, sugar, gum, etc., in the plant's tissues. From the latter the plant takes moisture, mineral matter (such as lime, phosphoric acid, potash), and the nitrogen necessary for its existence and growth. The food taken from the soil is absorbed through the roots as a dilute solution. The nitrogen of the soil, before it can be made of use by crops, must first be converted into compounds, known to the chemist as *nitrates*. This conversion is brought about by certain germs that live in the soil, and is known as nitrification. It is assisted by warmth and a right degree of moisture. It proceeds rapidly in summer in mellow, rich, aerated soils.

We will now revert to our argument. Science and practice have demonstrated that of all the elements of plant food abstracted by crops from the soil, there are practically three which we must return if the soil's fertility is to be maintained. Of the others, there is, generally speaking, a sufficient supply. The three I refer to are: Nitrogen, phosphoric acid, and potash. Constant cropping reduces the soil's store of these. For instance, let us illustrate the truth of this statement with the case of wheat. In twenty years a crop of wheat of 15 bushels per acre will have abstracted from the soil of that area about 650 lbs. nitrogen, 200 lbs. phosphoric acid, and 300 lbs. potash. These facts explain why fields lose their productiveness unless plant food is returned.

Now, plant food may be said to exist in the soil in two conditions: the one, inert, locked up and useless (because insoluble) to plants; the other, available, assimilable (because soluble), to plants. The latter, even in the richest soils, exists only in very small quantities, but its store is becoming constantly replenished by good culture. It is the store of available food that is more particularly reduced by growing crops. This is a very important point.

We must now consider for a few moments the two great classes of constituents that make up a fertile soil. The one is the disintegrated and semi-decomposed mineral or rock matter (which furnishes the lime, potash, phosphoric acid, etc., for our crops); the other is humus or vegetable matter (furnishing the nitrogen) resulting from the decomposition of the remains of past generations of plants. Humus is a most important and valuable ingredient of soils, as well from a mechanical as from a chemical standpoint. It is present to a large extent in all fertile soils; indeed, it characterizes such. It is the natural storehouse of nitrogen. By its further decay in the soil it liberates not only nitrogen but also the small amounts of mineral matter it contains, in forms suitable for absorption by crops. The percentage of nitrogen marks chiefly the fertility of a soil, and this percentage depends upon the amount of humus present. Moreover, as the humus disappears by continuous culture, so is the nitrogen dissipated. So that in order to have a soil rich in nitrogen we must keep up and replace humus-forming materials. Further, humus has a great retentive power for moisture, and improves a soil's tilth, making it mellow. It is highly important that for our crops the soil should be moist (to supply them with the water necessary for their growth) and that it should be mellow to allow root extension, to allow air to freely permeate it (for roots, as well as leaves, require air). Under such conditions nitrification will proceed rapidly.

To sum up this brief review, we see that continuous cropping, as for example, with wheat, reduces the soil's store of nitrogen, phosphoric acid, potash and humus. Further, it tends materially to injure the mechanical condition or tilth, which latter is a property of soils that must be closely attended to if our crops are to be well supplied with moisture and have a comfortable bed or medium in which their seeds can germinate and their roots forage for food. It will now be our business to learn how the growing of clover may improve a soil in these respects.

I have said that farm crops obtain their required nitrogen by absorption of nitrates formed from the nitrogenous organic matter (humus) of the soil. There is an exception to this rule. The exception is the legumes, a family to which clover, peas, beans and vetches belong. These are able to utilize—in a way I shall shortly tell you—the free nitrogen of the atmosphere. All other crops, cereals, field roots, potatoes, Indian corn, fruit trees, etc., must depend upon nitrates formed in the soil. If we take up carefully a plant of clover and wash the earth from its roots, we shall most probably find upon the rootlets numerous small nodules or tubercles. An examination of the contents of these nodules under the high power of a miscroscope reveals the presence of a swarm of minute bodies, known to science as bacteria, but popularly called germs. They are simply one-celled, microscopic plants. It is through the agency of these that their host plant, the clover, appropriates the free nitrogen that exists (in the air) between the particles of the soils. Without them, clover, like all other plants, would have to obtain its nitrogen from the nitrates, but since these germs are widely distributed in our soils there can be no doubt that the larger proportion of the nitrogen in the roots, stem and leaves of clover is derived from the air in the soil. Hence, the growth of clover enriches a soil in nitrogen, while other crops impoverish it in this particular. We come, then, to recognize two great classes of plants, the nitrogen-collectors, the legumes (of which clover is the most prominent member), and the nitrogen-consumers, to which all other crops belong. You will readily understand, therefore, that by plowing under a crop of clover we can materially increase the percentage of nitrogen in a soil. Subsequent decomposition of the clover in the soil serves to convert its nitrogen into forms available to other crops. Since wheat is a crop that particularly responds to an application of available nitrogen, you can realize the importance and value of this method of manuring to Manitoba and the Northwest Territories. Moreover, it is an exceedingly cheap method. We have found that a soil can be enriched with nitrogen from a crop of clover sown at the rate of 8 lbs. per acre to an extent equal to that from an application of 10 tons of barnyard manure. Chemical analysis has proved this.

In a rather vague way it has been known from the time of the ancients that a crop of clover improved rather than impoverished a soil, and in this respect differed from other farm crops, but it has only been within the past ten years that we have learnt the reason for this improvement, and the extent to which it may take place. For this knowledge we have to thank certain German scientists, who worked patiently for years before they could satisfactorily establish the fact that I have to-day brought before you, namely, that clover, through the agency of certain bacteria residing in nodules upon its roots, can appropriate and build up into its tissues free nitrogen gas, present in the air and existing as such between the particles of soil. The investigations that led up to this discovery were of the most careful, thorough and scientific character. The discovery is worth untold millions to the agricultural world, and must be considered the most useful and valuable to the farming community of those which mark the present century.

We must not lose sight of the fact that without these bacteria, clover, in common with other plants, must obtain its supply of nitrogen from nitrates in the soil. These bacteria are not necessarily present in the soil, though I have reason to believe they will be usually found in soils that have grown clover for any length of time. In the neighborhood of Ottawa, we find all fairly good soils produce clover having these nodules on their roots, showing the presence of clover bacteria in the soil. Mr. Bedford tells me that clover grown at Brandon has plenty of nodules on its roots, so there is every probability that the germs are to be found in the soils of those I am now addressing. I think it only right, however, to inform you that we have, both at Ottawa and Brandon, induced a much more luxurious growth of clover by introducing the germs in quantity. This we have done by "inoculating" the clover seed or the soil upon which it was grown with a preparation or culture containing the germs, and which is manufactured or prepared by Meister, Lucius & Bruning, of Hoechstam Main, Germany. The preparation is sold under the name of nitragin—a rather unfortunate term, as it so closely resembles our word nitrogen. It is made by growing the bacteria taken from the nodules in suitable media, and comes to us in the form of a jelly. The bottles containing it must be kept from light and heat. The contents are dissolved out with a sufficiency of lukewarm water (not above 100° Fah.) and the resulting solution (in the case of seed inoculation) poured over the clover seed. Some sand or dry loam is then mixed with the seed, to facilitate sowing, and at once sown. Soil inoculation is carried out by pouring the well-diluted contents of a bottle over, say, 300 lbs. of soil, and this scattered over the acre about to be sown, and harrowed in. A bottle of nitragin will cost about 75 cents, and is said to be sufficient for an acre. The vitality of the germs is not guaranteed for longer than six weeks after the preparation leaves the factory.

It is very doubtful to me, however, whether it is necessary for you to obtain this nitragin. By taking a few hundred pounds of surface soil that has grown clover well—and for this work it is well to select a cloudy day—and scattering it over the field to be inoculated, you will, in the majority of instances, be introducing the germs. This plan has been tried, with success, both in Europe and on this continent. It is advisable to harrow the field as soon after the inoculation as possible.

I have already said that we do not find any difficulty in getting clover to grow in any fairly good soil at Ottawa, but I should add that inoculation, using nitragin, has always given an increase of yield amounting to from 10 to 15 per cent. A detailed account of the results of our investigations in this matter for the past three years is to be found in the reports of the Chemist of the Experimental Farms. In these reports you will find fuller details and explanations concerning these germs and their work than I have been able to give you this afternoon.

For the past three or four years we have at Ottawa been in the habit of sowing eight to ten pounds of clover seed with the cereal crop of the rotation. This we find does not diminish the crop of grain and very much improves the productiveness of the soil. Cereals grown after clover have always given us an increased yield. When potatoes, corn or roots are to follow, we plow the clover under in the following spring, after there is a fair growth. The plan of sowing the clover with wheat or other grain is not, I believe, suitable in Manitoba, as in most years there will not be, in all probability, sufficient moisture to serve both crops. It will be necessary for you to grow the clover by itself, for it is a crop that makes great demands upon soil moisture, if it is to give a good stand.

Though, speaking in a general way, nature has endowed Manitoba and the Territories with soils far richer in plant food than those occurring in either the East or West Provinces of this Dominion, I am firmly of the belief that you will find the more extensive growing of clover to be of great advantage. It is always well to lock the stable while the horse is still there. It is always easier and less costly to maintain than to regain soil fertility. We know as a scientific fact, as well as from practical experience, that cropping with wheat continuously for a number of years lowers a soil's productive power, through the abstraction of available plant food and from the inevitable destruction of humus. The latter constituent we have learnt is not only a natural storehouse of nitrogen, but its gradual decay in the soil sets free mineral nutrients for our crops. It improves tilth by increasing a soil's water-holding capacity. It guards a soil against extremes of temperature. It furnishes food for the myriad of germs so necessary to fertility and whose special function is to prepare both nitrogenous and mineral food and present them in assimilable forms to our crops. Clover will add from 50 to 100 pounds of nitrogen per acre to the soil—gained from the atmosphere—and it will further enrich the soil with a large amount of humus-forming material. Let every one of you determine to try, at first, if you like, on a small area, the truth of what I have been saying regarding the value of the legumes—and especially clover—as a fertilizer. We shall be very much surprised if your older cultivated lands do not show an immediate response in increased yields of wheat. In conclusion, I would say that both Mr. Bedford and myself will always be glad to give you such further information as we have on this important subject, and to help you in any way possible.

Sowing Rape with Oats.

The praises of the rape plant are being sung louder each year, especially as a plant for fall pasture for sheep and hogs. In order to find out whether conditions were favorable to the growth of two crops in one season an experiment was begun in seeding oats with rape. Fearing the rapid growth of rape might injure the oat crop, the rape seed was sown ten days after oat seeding. Various quantities of both kinds of seed were used, but the best results were obtained from sowing six pecks of oats and one pound of rape per acre. The oats in this experiment yielded 60 bushels per acre, while the rape produced 18 tons green weight in the month of October. The strong growth of rape interfered slightly with harvesting the oat crop, and we are of the opinion that sowing rape two or three weeks after oat seeding would give excellent results. On poorer land good results are obtained when both are seeded at the same time.

The above clipping was taken from bulletin No. 45, which was issued from Iowa Agricultural College Experiment Station, and prepared by Prof. Jas. Atkinson, B. S. A., who thus reports on field experiments conducted by him last year. While Iowa conditions are somewhat different from those in Canada, still there is a lesson in Prof. Atkinson's report that is worthy of notice by our readers who would like to sow something among oats or barley (not seeded to grass or clover) that will produce fall pasture for cattle, sheep or hogs.

Re "Canada's Ideal."

LUTHER FOSTER, Agricultural Experiment Station, Lagan, Utah.—"Certainly a very handsome picture, and your company deserves great credit for its effort. The animals are truly ideals and will give anyone who looks at the picture a better idea of form and figure than he would ordinarily obtain in this country."

Forage Crops for Hogs.

RAPE, CLOVER, ARTICHOKES, VETCHES, PUMPKINS AND ROOTS.

For a great many years clover and potatoes have been used as succulent food for pigs, but during the last decade other crops have grown into favor for this purpose. The lessons learned from various experiments will serve a valuable purpose since they indicate methods of growing pigs cheaply and with little labor in the summer months. Prof. Thos. Shaw found rape to be a valuable pasture for hogs, but concluded, after an experiment, that a light grain ration should be given in conjunction with the rape. At the Wisconsin Station two trials of feeding rape have been reported, including in all fifty-eight pigs. In both these experiments one lot of pigs was penned and fed soaked corn and also shorts in a slop consisting of two parts corn and one part shorts by weight. The other lot had the same grain feed with a limited amount of rape in addition. In the first trial the ten on rape ate in 76 days 1,386 pounds of corn, 690 pounds of shorts and .32 acre of rape, and gained 853 pounds. The other lot penned ate 2,096 pounds of corn, 1,042 pounds of shorts, and gained 857 pounds. As the gain is essentially the same in each case, the third of an acre of rape saves 1,062 pounds of grain, or an acre of rape would be worth 3,318 pounds of grain. In the second trial, six acres of rape saved 886.2 pounds of corn and 444 pounds of shorts, or that one acre of rape is worth 2,217 pounds of grain. The average of the two trials indicates that an acre of rape is worth 2,767 pounds of grain for fattening hogs.

Stewart, in his work on "Feeding Animals," reports on an experiment in which green clover was cut and weighed to pigs. A litter of six pigs was weaned at five weeks old. They were fed on soaked corn meal, and then on chopped green clover mixed with corn chop. The pigs fed on clover and meal were always ready for their feed, while those fed on meal alone became mincing and dainty at times, and only recovered after slight fasting. Each lot consumed the same amount of meal. At the end of the time the pigs fed on meal alone averaged 150 pounds each, while those fed on clover and meal averaged 210 pounds each, or 40 per cent. more by being treated according to their nature as grass-eating animals.

Artichokes have won considerable reputation as hog food. At the Oregon Experiment Station six Berkshire pigs, weighing from 113 to 215 pounds each, were fed artichokes and grain from Oct. 22nd to Dec. 11th. They gained 244 pounds in weight, or an average daily gain of 0.81 pounds. The pigs ate 756 pounds of grain during this period, which is 3.1 pounds of grain for each pound of gain in live weight. In other experiments it was found that it required five pounds of mixed grain to produce a pound of gain, hence on this basis the artichokes consumed would represent two pounds of grain in producing each pound of gain in live weight. The pigs consumed the artichokes on one-eighth of an acre, rooting them all out. Artichokes are becoming popular for hog feeding on many Canadian farms. Mr. J. E. Brethour, Burford, Ont., has found them of great service in feeding growing pigs economically and well. Mr. F. C. Elford, in Huron County, Ontario, after considerable experience, considers artichokes a profitable crop to grow for hogs. His letter in our issue of April 2nd tells how he grows the crop. Mr. Elford has also found profit in pasturing hogs on lucerne.

As yet we have very little definite experimental evidence of the value of tares or vetches for pasturing hogs, but we are aware that several farmers who have tried the crop for this purpose pronounce upon it favorably. Sown early in May, the crop is ready to pasture before the middle of June, and if eaten down will continue to grow till on in August, furnishing good feed. Following this a patch of rape would be in order, which, if sown by June 1st, would sustain hogs until fall, when artichokes would complete the season's support for the hogs, in addition to a light ration of corn or other grain, whey or milk.

In addition to the crops we have mentioned, and sugar beets and mangels, which are already recognized as suitable hog feed, pumpkins are also worthy of a place on the pork-growing farm. The Oregon Station fed pumpkins to six Berkshire pigs which were about eight months old when the experiment began. The pumpkins were cooked in a vat and mixed with shorts. They were fed from Oct. 30th to Dec. 25th. Reckoning pumpkins at $2.50 per ton and shorts at $12 per ton, the amount of the former feed was worth $9.40 and the latter $5.54, a total of $14.94. The total gain in live weight was 499 pounds, making the cost of the food for 100 pounds of gain in live weight $2. The average daily gain for the entire period was one and a half pounds per pig.

The real value of succulent food for swine cannot be measured by simply gains in weight of pigs given such food. Undoubtedly when animals are confined to a pure grain diet, the digestive tract is more torpid and sickness is more liable to occur than when succulent food is given. Then the digestive organs are more active and natural in movement, and the body is better prepared to resist disease than when pure grain food is fed. The influence of this succulent food on sows in pig or suckling pigs cannot be measured by the scales, but the general testimony of practical feeders of experience is that such diet promotes easy parturition, a generous milk flow and vigorous offspring.

The Construction of a Concrete Silo.

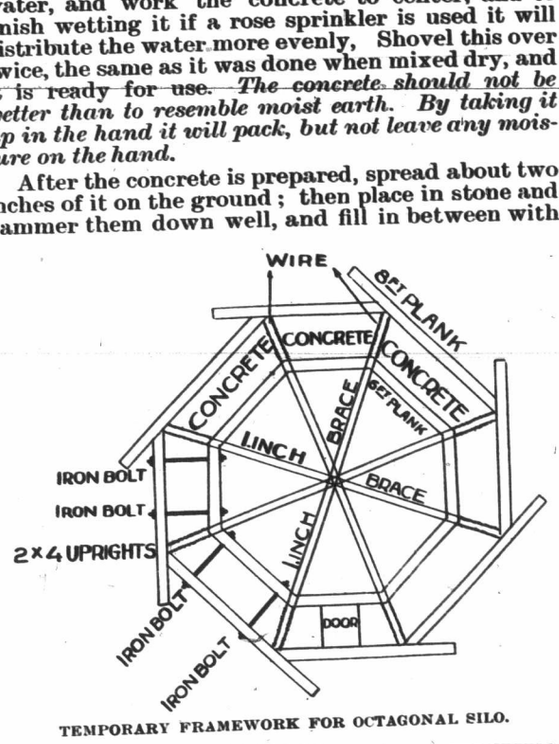
Take for example an octagon one, 16 feet in diameter, inside measurement, and 25 feet high, walls 16 inches thich at bottom and 10 inches at top, and I shall endeavor to give the process of making the concrete, the form of building, its cost, and the amount of silage it will contain.

In starting to build a concrete silo, it is necessary to excavate below frost, which should be 2 feet deep and one foot wider than the outside diameter of silo, so as to allow for footing course. By excavating all the ground out of the interior of silo, the floor can be put down to the bottom of footing, which will save building the walls so high.

MIXING THE CONCRETE.

In making concrete, lay down some straight-edge boards on the ground, and drive stakes on each side to keep them from spreading. This platform should be 12 feet square, with no sides to it. Now make a box without any bottom—just two feet square, inside measure, and 8 inches deep, which will hold just two paper sacks of cement. Fill this with gravel as often as you wish your concrete gauged for walls; it is usually 5 of gravel to 1 of cement. After the gravel is measured, spread the cement on top and shovel over twice dry. By letting every shovelful drop in the same spot the pile will form a cone shape, and the concrete will mix by rolling down the sides of the pile. After the concrete is mixed dry, level it off about shovel deep and make a hole in center, and pour in about two pails of water, and work the concrete to center, and to finish wetting it if a rose sprinkler is used it will distribute the water more evenly, Shovel this over twice, the same as it was done when mixed dry, and it is ready for use. *The concrete should not be wetter than to resemble moist earth. By taking it up in the hand it will pack, but not leave any moisture on the hand.*

After the concrete is prepared, spread about two inches of it on the ground; then place in stone and hammer them down well, and fill in between with



TEMPORARY FRAMEWORK FOR OCTAGONAL SILO.

concrete until the height of footing is attained, which should be 10 inches or 1 foot. After the footing is put in, the form for building the walls should be put up. I have used uprights and wedges, but would prefer bolts to hold the plank to their place. The drawing I send will show this.

THE TEMPORARY FRAME.

Take 8 pieces, 2 by 4 in. by 14 ft. long, and stand them on end for the inside angles, and by nailing 1 by 6 in. by 16 ft. boards on top of these 2 by 4 in. pieces and letting them cross one another in center of silo and nailing them together, it will keep the uprights the right distance apart. By taking a 2 by 4 in. scantling and standing it up in center of silo under these boards, it will keep them from sagging. By taking a small strip and nailing it from top to top of these uprights it will keep them the same distance apart, and a few braces nailed crossways will keep this form solid and plumb. Now, take 8 more pieces, 2 by 4 in. by 14 ft. long, and stand them on end (according to plan) for the outside corners, and 16 in. at bottom and 10 in. at top from inside uprights, wire these together at bottom and nail strips on them every 4 or 5 feet high to keep them to their place. When these strips are in the way of raising the plank, take them off and put a wire in their place and build it into the wall so that the 2 by 4 in. scantling cannot spread. This form is stationary and is not moved until the height is reached. By building a wire through the wall, about two feet from the top of wall, the uprights can be held to their place at the bottom when raised the second time by twisting these wires tight around them.

In putting in the plank first saw notches in the bottom edge, 1½ in. deep, to allow room for ⅝-in. bolts; then place the inside plank on edge between the upright and flush with the inside of it. The outside plank should butt against the 2 by 4 at one end and pass by the 2 by 4 at the other. This saves the sawing of the outside plank every time it is raised, as the batter is on the outside of silo. Put in the bolts in these notches and tighten the nuts and nail strips across the top of plank to keep them from spreading.

BUILDING THE WALL.

Now put in about 2 inches of concrete, then add the stone the same as in the footing and ram the concrete gently but firmly around them. Never let the stone come nearer than 1½ inches from plank and from each other. When between these planks is filled with concrete, take off the top strips, loosen the nuts and lift the plank off, draw out the bolts and place them on top of wall, and place the plank on the same as before, and repeat until wall is finished. As the wall is built it becomes narrower. By taking short bits of 2 by 4 and boring holes in them they can be used for washers on bolts.

THE DOORS.

In putting in the doors they should be on top of each other and 1 foot or 16 inches apart, and between every door put in anchors made out of 7 or 8 strands of common fence wire twisted together, and put it all around the silo in center of wall; this will help keep the walls from spreading. After the walls are built they should be plastered on inside, and not more than ⅛ of an inch thick and the floor 2 inches thick.

A silo as just described, built with Battle's Thorold cement, would require 60 barrels cement, 10 yards stone and 40 yards gravel, 45 days' labor for one man or 9 days' for 5 men, and will hold about 96 tons of corn ensilage.

Welland Co., Ont. NORVAL B. HAGAR.

Women's Institutes.

Mr. G. C. Creelman, Superintendent of Farmers' Institutes for Ontario, has written the officers of the local organizations, suggesting that a Women's Institute be formed in each district. The ladies should meet at the same time and place as the Farmers' Institute, holding their afternoon meeting in a separate room. To this meeting the superintendent will assist in securing the services of a lady delegate who has had experience in the work of such organizations. In the evening there should be a joint meeting of the Institutes, each having a share in the preparation of the programme.

In the Act governing Farmers' Institutes there is a provision made whereby the Government gives an annual grant of $10 in each district to assist a Women's Institute. Further, the Act also states that one of the ways that Farmers' Institutes may spend their money is: "To make an annual grant (not exceeding $10) to the Women's Institute in the district." I am sure that your Institute would give that amount to aid the ladies, and that you would also assist them in getting a like amount from the County Council.

Superintendent Creelman asks for a list of at least six ladies in the neighborhood who would assist in organizing and supporting a Women's Institute. South Wentworth has had a Women's Institute for three years, and South Ontario organized one last year. The latter has grown until they have already had to form several branches in different parts of the riding. The following are the rules and regulations governing Women's Institutes:

1. The formation of Women's Institutes shall be permitted, one for each district, as given in Schedule "A" of the "Act and Rules Governing Farmers' Institutes."

2. The organization meeting may be called by the Superintendent of Farmers' Institutes, by the head of a municipality, by the president and secretary of the local Farmers' Institute, or by any five ladies of the district. At least two weeks' notice shall be given by advertisement in the newspapers published in the district or by placard, in which shall be stated the object, time and place of meeting; see clauses 5, 6, 7 and succeeding clauses of the "Rules and Regulations Governing Farmers' Institutes."

3. The rules governing Farmers' Institutes (except clauses 1, 2, 4, 30 and 72) shall govern the Women's Institutes.

4. The object of Women's Institutes shall be the dissemination of knowledge relating to domestic economy, including household architecture, with special attention to home sanitation; a better understanding of the economic and hygienic value of foods, clothing and fuels, and a more scientific care and training of children, with a view to raising the general standard of the health and morals of our people.

5. Each Women's Institute shall be in affiliation with the Farmers' Institute in the district.

6. Each Women's Institute shall receive a grant of $10 annually from the Department on condition that an equal sum be granted by the County Council or municipalities in which the Institute is organized, or from the local Farmers' Institute, and on such further conditions as are imposed by the "Act and Rules Governing Farmers' Institutes."

7. In addition to the annual meeting, each Women's Institute shall hold at least four meetings each year, at which papers shall be read and addresses delivered dealing with topics as set forth in clause 4.

8. Each member of each Women's Institute shall receive each year a copy of one or more publications dealing with some subject set forth in clause 4.

The $600-a-Ton Food Analyzed.

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—The condimental stock food forwarded by you for analysis, on March 17th, consists largely of finely-ground linseed meal or cake, to which has been added common salt, saltpetre, and copperas (sulphate of iron). It has been flavored by the addition of a small amount of fenugreek.

The prices generally asked for such condition powders are far in excess of their value, whether such materials be considered as medicine or food, or both. The stock-feeder or dairyman will find it greatly to his profit to obtain such medicine or treatment as his animals may at any time require rather than to pay exorbitant prices for materials which may or may not benefit his stock, and the nutritive value of which is certainly less than many concentrated feed stuffs on the market.

The analysis affords the following data:

Moisture	8.38 per cent.
*Ash	13.26 "
Protein or albuminoids	15.74 "
Fat	6.37 "
Fiber	5.15 "
Carbohydrates	51.10 "
*Containing saline ingredients.	100.00

FRANK T. SHUTT,
Chemist, Dom. Exp. Farms.

[ED. NOTE.—The stock food analyzed by Prof. Shutt, and referred to by him in the above letter, was that to which reference was made, in our issue of March 15th, as being sold by travelling agents at $600 per ton. In order that our readers may the more accurately estimate its value from its contents, as proved by analysis, we give the average composition of corn, peas, and oats, according to Prof. Stewart in "Feeding Animals":

Corn—

Moisture	14.4 per cent.
Ash	1.5 "
Albuminoids	10.0 "
Fat	6.5 "
Fiber	5.5 "
Carbohydrates	62.1 "
	100.

Peas—

Moisture	14.3 per cent.
Ash	2.4 "
Albuminoids	22.4 "
Fat	2.0 "
Fiber	6.4 "
Carbohydrates	52.5 "
	100.

Oats—

Moisture	14.3 per cent.
Ash	2.7 "
Albuminoids	12.0 "
Fat	6.0 "
Fiber	9.3 "
Carbohydrates	55.7 "
	100.

A comparison of the above tables shows the stock-food mixture to compare favorably with oats, peas or corn for their feeding value. The addition of a small quantity of salt, saltpetre, copperas and fenugreek could not possibly enhance the value of the mixture materially.]

Windmill Power on the Farm.

To the Editor FARMER'S ADVOCATE:

In reply to a request of your subscriber for information regarding windmills as a useful farm power, I wish to say that I consider them a fine thing on the farm. We are using a mill put up by the Ontario Wind Engine & Pump Co., Toronto, and it is a satisfactory machine in every way but one, and that is there are times when we would like to use it when there is no wind. We grind, pulp turnips, run grindstone and cut feed. Our feed cutter is Watson's Excelsior (13-inch. throat), and when there is a good breeze blowing we can cut sheaf oats as fast as a man can feed them, and our wheel is only a 13-foot one, yet I believe it will develop from six to eight horse power. For chopping and cutting turnips it is just fine, and if you want an axe or any other tools sharpened, it is a pleasure to do it with a power grindstone, to say nothing of the better work done. The other day I ground five chisels, a drawing knife, two other knives and the blade of a jack plane in less than twenty minutes. This has been a fine winter for wind, hardly a day without enough to cut turnips; I do not think we missed five feeds that we did not have turnips cut with the windmill. A year ago I made the woodwork of a root pulper (I got the wheel from a neighbor that was burned out), and put carriers on it. It works fine, and in the fall we had it set in the barn and we could pulp away into the wheelbarrow and then wheel them out to the pigpen. The carrier is a great advantage, in my mind, and I think manufacturers should fit their pulpers with carriers.

I am well pleased with the windmill and would not be without it for a good deal, and it always gives me great pleasure to recommend it whenever I have a chance, and am sure that any man who purchases a windmill will feel that he has got good value for his outlay. Ours is up about two years now and has not cost a single cent, only for oil, after the first cost. I have not tried it pumping water, but believe it would be just as satisfactory and probably more so.

W. J. ANDERSON.

Simcoe Co., Ont.

Various Forage Crops for Summer Pasture.

The uncertainty of grass pastures in the dry summer months during the last few years has led many farmers to resort to a system of partial or complete soiling of stock from the time pastures begin to fail till the fields again provide ample support for the stock. Probably the most satisfactory method of soiling is found in the use of the summer silo, as the feed is then convenient and ready for use with little labor. With some classes of stock, however, and where satisfactory help is difficult to secure, soiling is more or less impracticable. In view of this condition of affairs we have given some attention to the adaptability of certain crops that may be grown on the ordinary stock farm to be used as pasture during seasons when grass fields present a browned and bare appearance.

FOR DAIRY COWS.

Probably the most extensive investigation of the value of annual forage plants for summer pasture for cows that has been conducted on the continent was carried out by Profs. T. L. Lyon and A. L. Haecker at the Nebraska Experiment Station in the summer of 1898. The objects were to throw light on the following points: 1st, the possibilities of preventing a decrease in the milk flow of cows during the dry period of summer by the use of annual forage plants; 2nd, whether permanent pasture can be in part or wholly substituted by annual forage plants; and, 3rd, the relative values of the most promising of these crops as feed and butter producers.

In the experiment, plots of land one-fifth of an acre in size were sown to each of the following crops: Fall rye, oats and peas, hairy vetch, Indian corn, millet, sorghum, white Kafir corn; yellow maize, soy beans and cow peas. When the crops reached a suitable stage for pasture, ten cows of the dairy herd were turned in, one in each plot, and kept there until the crop was eaten down. The cows were weighed before and after the experiment, and the milk was weighed for each day. Each cow was pastured on alfalfa for at least one month before being placed on the test crop (period I.) and for at least one month afterwards (period III.); the time she was in the test plot was known as period II.

The following table shows the results obtained in the experiment:

	Rye.	Oats and Peas.	Hairy Vetch.	Indian Corn.	Millet.	Sorghum	White Kafir Corn.	Yellow Millo Maize.	Soy Beans.	Cow Peas.
Name of cow pastured	Bessie	Annie	Diana	Cora	Bessie	Eloise	Gertie	Hattie	Juno	Diana
Began pasturing	June 13	June 13	June 26	June 20	July 15	July 13	July 13	July 13	.....	.....
Finished pasturing	.....	July 5	July 12	July 13	Aug. 4	Aug. 14	Aug. 4	Aug. 6	.....	.....
Number of days pastured	.....	22	16	23	20	32	22	24	.....	.....
Weight of green forage per acre—tons	.....	8.7	6.0	16.8	11.6	18.7	19.2	15.1	.....	.....
Gain or loss of live wt., Period I.—lbs.	+9	-4	+60	-2	-11	+28	+32	+40	+2	+31
" " " II.—"	+23	+25	-18	+23	+25	+20	+18	+33	-20	-3
" " " III.—"	+12	-3	+48	+4	+33	-15	0	+20	-2	+35
Av. daily milk production, Period I., "	28.09	24.94	20.99	24.77	24.31	24.48	19.07	21.34	15.00	18.68
" " " II., "	24.60	19.94	18.39	20.36	20.23	19.78	15.31	8.00	13.81	16.73
" " " III., "	23.81	23.12	21.17	23.94	23.44	19.37	14.05	4.80	13.44	14.36

*Surplus sign indicates a gain in weight. The minus sign a loss in weight.

The Oats and Peas were sown at the rate of two bushel of each per acre and harrowed in on April 15th, and the cow turned in June 13th. She pastured here 22 days. A duplicate plot yielded at the rate of 8.67 tons of green crop per acre.

The Rye was sown in the fall at the rate of one bushel per acre, producing rather a poor stand, and therefore did not give a fair test. Experiments conducted at that Station in 1897 indicated that rye produced a very abundant pasture, which places it in the lead of all the crops tested for early spring pasture.

Indian Corn was sown in rows six inches apart, at the rate of two bushels per acre, on May 20th. On June 20th the cow was put in, and by July 13th she had the crop well eaten down. A duplicate plot yielded at the rate of 16.77 tons of green forage per acre.

Millet.—The common variety was sown on June 2nd, in rows six inches apart, or at the rate of one and one-half bushels per acre. On July 15th the cow was turned in, where she remained till August 4th. The crop was closely eaten down. A duplicate plot of forage yielded at the rate of 11.60 tons per acre.

Sorghum.—Early Amber variety was drilled in on June 1st, in rows six inches apart, at the rate of two bushels of seed per acre. The cow was put in on July 13th, when the crop was about two feet high. She remained till August 14th, when the crop was fairly closely eaten. A duplicate plot cut August 17th yielded at the rate of 18.67 tons per acre of green forage.

Kafir Corn.—The White variety was drilled in on June 1st, in rows six inches apart, at the rate of two bushels per acre. The cow was turned in July 13th, when the crop was two feet high. She had the crop well eaten down on August 4th. A duplicate plot cut on August 17th, just before heading, yielded at the rate of 19.20 tons of forage per acre.

Yellow Millo Maize was sown in rows six inches apart, at the rate of two bushels of seed per acre, on June 2nd. On July 13th the plants were two feet high, when the cow was turned in. She grazed till August 6th. A duplicate plot yielded, on August 6th, at the rate of 15.12 tons of forage per acre.

Cow Peas and Soy Beans did not produce a sufficiently full crop to afford a fair test.

Of all the forage crops tested, sorghum furnished by far the greatest amount of pasture. For medium early pasture, oats and peas produced the most feed.

Improving the Fall Fair.

In this and late issues the subject of township fairs is discussed by several contributors, additional suggestions of value being made for the improvement of these and other exhibitions. This is a branch of the subject upon which we would be glad to hear further from various sections of the Dominion, because there is no reasonable doubt that very many shows are not the incentive to agricultural progress which they are intended to be, largely for the want of energy and new ideas. Now is the time to begin putting fresh life into the local show that will bear fruit next autumn. Such hints are in order as those of Mr. Hy. Arkell in our last issue, viz., the giving of prizes for the best groomed and harnessed team, best broken team, best walking team, best heavy draft team suitable for export, etc. At several fairs much interest has been awakened by milking trials, in which some of the best dairy cows of the township or district have entered a competitive test conducted by competent experts. Messrs. Arkell and Tolton both suggest that exhibitors should not receive more than one prize in any one section of a class.

In this connection we are indebted to Mr. Jas. Mitchell, of the Goderich (Ont.) *Star* for a detailed account of the proceedings of the Canadian Fair Association meeting recently held in Toronto, of which he is one of the vice-presidents. Among the suggestions made in the direction of legislation was one to the effect that the Government grant to the agricultural societies, of which there are some 470 in the Province, should be made not on the basis of membership, but of the amount of money paid in premiums, the principle on which Government aid is extended to public libraries. It was pointed out that the present membership condition was in order to give the society incorporated status, and thus hold property such as buildings and grounds.

One speaker proposed that only such fairs as are unmistakably successful should be kept alive by public money, but no definite recommendation was made upon that point. Professional or expert judges from a distance, at least from another county, were favored, unless in special cases, where there was a very large exhibit to judge. There was discussion on the question of having township exhibitions open only to residents of the municipalities, except in special cases, which in the judgment of the directors might be left open.

The question of special attractions was discussed at length and the general tenor of the report leaves this impression, that in some form or other they were regarded as essential to financial success, but their character was deserving of very great care. It was reported that West York had found school children's parades, with songs and drills, and prizes for the best turnout, a good drawing feature. Lindsay also enlisted the co-operation of school children, but we think unless carefully managed such competitions might give rise to serious heart-burnings among the youngsters. At the Minnesota State Fair, attended by one of our staff, an interesting feature in the main building was the display of penmanship and drawing from various schools, and the Western Fair, at London, Ont., introduced an instructive idea by giving prizes for properly-named collections of local insects and weeds. Let us have suggestions from others as to how improvements may be made in various departments of Fall Fairs.

Admission and Entry Fees vs. Agricultural Society Membership.

SIR,—The question of the local fall fairs is one that needs to be handled very lightly. It has been talked over with other questions that arise at the meetings of the Canadian Association of Fairs and Exhibitions, and no conclusion has been as yet come to. I fancy if some effort were put forth to improve the present organizations, better results would follow. I am satisfied that in this section the feeling is to continue the organizations, both county and township, as each has its particular work to do.

We have had no experience in limiting judges to townships, but have heard that a township not far away has, and find it works well. In South Norwich we have always been fortunate, and do not meet with the difficulties that have been experienced by others. In conversation with a gentleman of long experience in agricultural fair work, he said he would not advise a limitation unless all township societies would agree to the same, when they would be all placed on a level. In a good many townships that have been represented at our meetings, they claim to be doing as good and even better work than the county or district fairs.

In regard to attractions, this is a subject that has taken a good deal of thought and attention. I think the majority of the people believe, in order to make the show a success, it is necessary to have some outside attraction other than just the events in the regular prize list. I agree with Mr. H. J. Hill, in his discussion of this matter, that attractions must be given to suit the locality, and that as outside attractions of any particular magnitude are too costly for the majority of fairs and exhibitions, something of a local character must be submitted, and we have found the speeding in the ring to answer the purpose. I do not mean the usual horse race, when jockeying is done and the best horse not getting the prize, as is too often the case, but the directors having no favorites, making the horses show the people that they are doing what they are entered and bred for. We carry on our speeding in this way, and people who patronize our shows seem to be satisfied and go away with the impression that no particular harm has been done morally or in any other way.

In regard to the financial success, I think I have discovered a great leak hole in the finances by having the memberships as at present. It was at one time the rule for people to help, in every way possible, the show along, but times have changed, and it seems to be the question now, what can I get out of it? I have been thinking for some time that if we could do away with memberships and have everybody pay going through the gate, collect a fee for entries, that would, in my opinion, increase the finances that are found at the close of the show in so many instances to be short to meet the obligations of the society. But we are met with this objection, that we must have members to be constituted a society. If memberships were done away with, directors elected from a meeting of the residents of the municipality, and the Government grant based upon the amount of prizes actually paid, it would seem to me to be just to all, and would meet with satisfaction. My objection to memberships is that we have to allow admissions through the gate on said memberships, some societies more and some less, and we who have watched the thing agree that there are people who will do things not in accordance with their moral standing and training, that they would not stoop to do in any other ordinary transaction, hence the shortage of gate receipts. Hoping that this may be of some little use to you,

ALEX. MCFARLANE,
Sec. S. Norwich (Ont.) Agl. Socy.

A New Machine Wanted.

SIR,—I have noticed in the FARMER'S ADVOCATE that a machine is wanted to cut and thresh at the same time. I consider a special machine is not needed, but a straw cutter and separator combined. I have never seen such a combined machine at work, but I give my plan at a venture. Have a large cylinder ensilage cutter with a belt pulley on each side, one larger than the other, to increase the speed of the separator if necessary, placed before the separator, with a carrier between placed so as to throw the cut stuff against the spikes of the cylinder. Have a belt, one side to connect with the engine, and another belt on the other side to run the separator. The cutter can be set to cut long and increase its working capacity. Good straw cut and evenly mixed with chaff is an ideal feed, and will be relished by live stock, and grain that is used for feed is not injured by being cut, and grain that is damp and tough is easily threshed when cut.

Waterloo Co., Ont. D. W. GINGRICH.

The Silver Medal Farm.

"Justice" writes us: "Kindly allow me a little space to correct a statement which appears in an article published in the ADVOCATE of the 2nd and headed "Successful Farming." In this article Mr. Wm. Rennie is represented as the winner of the 1st prize silver medal offered by the Ontario Agriculture and Arts Association for the cleanest and best-managed farm. Now, the facts are these: The prize Mr. Wm. Rennie won for his farm was in 1883, in group 4, which included about seven counties. In this competition Simpson Rennie, of Scarboro, was awarded 1st prize; Wm. Rennie, Toronto, 2nd; and David Smellie, Vaughan, 3rd."

Three Sugar Beet Diseases.

Important investigations are being conducted by the Cornell College of Agriculture in the fungous diseases of the sugar beet. Mr. B. M. Duggar is studying three of the diseases which are more or less prevalent throughout the United States and Canada.

1. The root-rot of beets (Rhizoctonia Betœ, Kühn) is the same fungus as that which causes a stem-rot in carnations. It has been very destructive to the sugar-beet industry of Germany. The first evidence of the attack of this fungus is seen in the blackening of the leaf bases, and then, the stalks becoming weakened, the leaves lie prostrate on the ground. The disease next works into the crown and root proper and infected parts turn brown. Cracks appear in the root region; in time the whole top rots away, and the beet gradually disappears.

Mr. F. C. Stewart, of the Geneva Experimental Station, having determined that a small amount of alkalinity is fatal to the growth of the Rhizoctonia of carnations in cultures, it has been very reasonably suggested that lime might be used as a possible preventive for certain rhizoctonial diseases. The majority of soils are usually in need of liming, and where this beet disease appears an application of lime would very likely prove beneficial. The desired alkalinity could be secured with from sixty to seventy bushels of air-slacked lime per acre.

2. The leaf spot of the beet (Cescospora beticola, Sacc.) is a disease of very wide distribution. It begins as small brown spots with a reddish-purple

BALSAM, 30 FEET HIGH, 16 YEARS OLD.
Grown from seedling; on property of A. P. Stevenson, Nelson, Manitoba.

margin. The spots are scattered irregularly over the leaf. In time the blade shows parched appearance and finally the whole leaf becomes black and crisp. The leaves that are parched and dry stand more nearly upright on the crown, the blades that are badly infected become curled and rolled and the whole field assumes a curiously characteristic appearance.

Numerous fungicides have been tried, but the Bordeaux mixture has proved the most efficient remedy for the leaf spot. The standard formula for the Bordeaux mixture should be used, consisting of: Copper sulphate (blue vitriol), 6 pounds; fresh stone lime (unslacked), 4 pounds; water, 50 gallons.

3. The beet scale (Oospora scabies, Thaxter) is a fungus that causes the smooth surface of the beet to be disfigured by warty or scabby excrescences. These scabby protuberances are abnormal developments of corky tissue stimulated to excessive growth by the fungus. Sunken scabby spots are also found on the surface of the beet. They are early injuries which, failing to develop, are left as pits owing to the further growth of the beet. The potato scab and the beet scab have been found to be the work of the same fungus, and it has been shown that scabby beets are often due to the fact that the previous season the land produced scabby potatoes. Neither liming nor sulphuring have given satisfactory results, and the only course open is to avoid for the growth of beets any soil which during several years previous has produced scabby beets.

WM. MACDONALD.
Tompkins Co., N. Y.

Mangel Growing.

To be successful in growing a crop of mangels, it is necessary, first, to have the soil in good condition; secondly, to give the growing crop thorough cultivation. Excellent results can be obtained by fallowing clover sod turned down in the autumn, top-dressed liberally in the winter season, with not too long stable manure worked into the soil in the spring. But as we have a

TWO-FOLD OBJECT IN VIEW,

viz., of cleaning our ground of noxious weeds, as well as producing a crop of roots, we generally select a field that is needing such a cleaning. This is usually an oat stubble. As soon as the oat crop has been harvested, we plow the ground as lightly as possible, not deeper than four inches, working it down with harrow and roller, so that any seeds that may be near the surface would be in a condition to germinate as a shower of rain comes. This we let lie until after wheat seeding is completed, when we again turn it over with the plow, this time an inch or an inch and a half deeper than the previous time, and work it down as before. It is after this working that we see the good results of our work. The soil being in a high state of cultivation, the weed seeds that may have been turned down too deep for germination at the first plowing are brought near the surface, and are soon showing above the ground in plant life. The field is then left until just before the plowing season closes, when it is covered with stable manure, considerable of which will have accumulated in the yards by this time if the stock have had proper fall care. We apply fifteen to twenty loads per acre, plowing in as lightly as possible, thus destroying all plant life, and placing in good condition to unite with the soil for the coming crop. So much work may seem expensive and unnecessary, but I consider this method better than a summer-fallow for cleaning the land, and much cheaper than so much hand hoeing in the root crop the following season. When our ground has been worked thus in the autumn, we do not plow it in the spring.

SPRING CULTIVATION.

As soon as the ground is sufficiently dry in the spring, we go over the root ground with cultivator, roller, and harrow, which will pulverize the surface, thus holding the moisture until the oat and barley seeding is completed. We then work the ground thoroughly, roll it to make it firm, set it up in drills about twenty-seven inches apart, and sow with a two-row drill, one and a half inches deep, immediately after setting up, thus giving the seed the benefit of all available moisture. The land roller is then run over the drills to broaden the surface and compress the ground.

VARIETIES.

We have been sowing the Mammoth Long Red for four or five seasons, and find them a heavy cropper and good keeper. One year we grew a few of the Yellow Half-Long, and found them not so heavy a cropper, but an excellant keeper. If the ground is in good condition, four pounds of seed will be sufficient per acre.

CULTIVATING THE CROP.

As soon as the young plants can be plainly seen along the row, the cultivator is started, having the shovels reversed so as to draw the soil from the row, which prevents covering the young plants, but, at the same time, drawing away grom the row, and to the bottom of the drill, and destroying any weeds, which are so easily killed at this stage.

The thinning which is done by the hoe and hand is quite an important part; this should be finished before the plants get too large, as it requires less labor when they are small, and we almost invariably notice that if the crop had not all been thinned at about the same time, the first thinned yielded the heaviest crop. After thinning, the cultivator is kept going at intervals as long as is practical to keep the soil loose on the surface and to keep down weeds. We generally go through the crop once with the hoes, say two weeks after thinning, and cut out any weeds that may have been missed before. Even after this some weeds may show themselves, which from press of work are often left till after harvest, when, if time will permit, we pull and carry off the field, for by this time the seeds may have set on many of the plants, which, if let go, will undo what we worked for the previous fall.

HARVESTING THE CROP.

The harvesting of the crop we leave as late as is practical and avoid heavy frosts. About the second week in October is a very good time in our section. In pulling, each man takes two rows, throwing four rows into one; these are hauled at once to the root cellar on truck wagons, avoiding frosts that are so frequent at this season of the year, causing decay on the side of the root that was exposed.

By following this method, and with a resonable rainfall, we are able to secure a large and profitable yield of succulent food that is so helpful in dairying and hog-raising, and which no farmer can profitably do without.

A. W. VAN SICKLE.
Brant Co., Ont.

Mr. Rennie's Book.

To the Editor FARMER'S ADVOCATE:

SIR,—I have just received the 1st, or, rather, 2nd of April number of the ADVOCATE, and am very much pleased to see a portrait of Mr. Wm. Rennie in it. I sent for and received, a few days ago, his book, entitled "Successful Farming," and must say it is the best work of the kind I ever read. It is not only scientific, but also thoroughly practical in all departments, both farming and gardening, on all branches of farming and stock-raising, cattle, horses, sheep, hogs, poultry, and fruits of all kinds, restoration of worn-out soils, cleaning dirty land from all foul weeds, best implements to do the work with, building of different kinds of silos, and many more things too numerous to mention here.

I would say to each and all my brother farmers that want to be progressive, buy one and carefully read it, and if you do not find it worth more by the year's end in some way than many times the price of the book, I cannot think you are one of the progressive farmers, for we are never too old to learn.

I have not written this for the sake of putting money in the publisher's pocket, for I am not personally acquainted with him, but for the sake of my brother farmers, that it might wake them up to a better system of farming, and put a change on the face of our country.

JOSHUA BOBIER.

Oxford Co., Ont.

For Loading Large Stones.

Those farmers who have large stones to haul off, should make a good loading chute. Take two pieces, 6x2½ tough rock elm plank, securely bolted to two cross pieces same size and 21 inches long. The outer edges of plank to be raised 2 inches, which can be done by making a wedge 2 inches thick and running to a point at 6½ inches, and bolting this between the cross and side pieces. The cross piece for the top end should only be about 4 inches from the end, so that it rests against the plank on waggon or trucks. These plank should be elm, and should have a 2x4 piece bolted on top at each end to keep the plank in place when the stone is being hauled up. With a good drawing team that will stand and hold, any stone can be hauled up that the plank will carry. In dry weather we carry a can of soft soap, and put a little on the plank to make the stone slide easy. Of course the very large stones should be blasted. I have not had much success in cracking stones by fire. One rare kind of stone will break very well that way, but as a rule blasting with gunpowder is the best, safest and cheapest method. In making the loading chute, care should be taken to see that the side pieces are put on so that the stone will be hauled up with the grain of the wood and not against it.

D. L.

Oxford Co.

DAIRY.

Cheesemaking.

At a district dairy convention, held recently at Peterboro, Mr. G. G. Publow, instructor in cheesemaking at the Kingston Dairy School, addressed a meeting of cheesemakers and the patrons of factories, taking for his subject "The Faults in the Cheese Made in Eastern Ontario During the Season of 1899," mentioning the causes and suggesting remedies.

Mr. Publow stated that many complaints had reached him in regard to the quality of the cheese made. The buyers were becoming more critical and exacting, and prices were "cut" on everything except the finest goods, so close was the competition, and so narrow the margin of profit to the cheese buyer. The principle fault had been openness of body in the cheese. This was not so much a weakness of body, but on boring the cheese one did not get that close, solid plug that is essential in a good cheese. The second cause of complaint was on account of objectionable flavors in the cheese. These may be divided into two classes—off flavors and food flavors. Off flavors are caused by some kind of bacterial growth; these grow worse with age, as the bacterial growth increases. Food flavors are worse when the cheese are fresh made, and to some extent pass off from the cheese during the curing process. They never get any worse after the cheese are made.

In regard to openness of body, it is often caused by makers having their curds too dry early in the season. In order not to get curds too dry, they should not be cooked too high in the spring (we cook lower because we have less fat in the milk), as the high temperature used in cooking drives off the moisture. Give them time to mature in the vat. Mature the curd evenly by turning it often; leaving the curd unturned for a long time allows the moisture to settle to the bottom of the curd; the top of the curd gets dry and does not cure so fast as the bottom, in which the moisture has remained. In the spring keep up the temperature, and do not let the curds get chilled.

Another prolific cause of openness in the body of cheese was the bad surroundings of some factories, open ditches containing stagnant water, flies carrying contamination from filth to the cheese by falling into the vat or crawling over the curd. Dust would be likely to cause open cheese. Sometimes in such surroundings you would get round holes or "fish eyes," and sometimes a "pinhole" curd. Much of the openness complained of in cheese is from dirty milk, this in its turn from dirty cow byres. In the factory, leaky dippers or scoops would cause the trouble. The filth organism, whether originating from filthy surroundings on the farm or at the factory, was responsible for the open cheese, and the cheesemaker must have his person, factory, utensils and surroundings scrupulously clean. If these organisms were in the milk, and the milk came to the factory cold, they might escape detection, especially if the senses of the cheesemaker had not been educated. You must educate the sense of smell, taste and touch, so as to be able to reject milk that cannot be made into first-class cheese. Some makers have so educated their senses that they could set a vat without a rennet test. The speaker did not advise their doing so, but he had met a great many makers who could tell when the vat was ready to set almost as accurately as it could be found out by the rennet test.

DETECTING FAULTY MILK.

The fermentation test is a valuable aid in finding out the faults of milk, whether it was a gassy curd, taints from feed and filthy surroundings, or any abnormal fermentation in the milk that would prevent good cheese being made out of it. To conduct a fermentation test, take a sample of the patron's milk to be tested in a half-pint bottle, set in a zinc-lined box, keeping the water in the box up as high as the milk in the bottle, and warm enough to bring the temperature up to 86 degrees. If one simply wishes to find out what flavor will develop in the milk, it will not be necessary to add rennet; but to find out what kind of a curd the patron's milk will make, rennet must be used. To set the bottles, take a dram of rennet and add it to two ounces of water, add a dram of this diluted rennet to each bottle, and after setting 25 or 30 minutes, cut with a curd knife. In taking the samples and cutting the curd, be very careful to scald off the utensils, so as not to carry contamination from one sample to another. Heat to 100 degrees. After a time the whey can be drained off, leaving the curds in the bottles.

Where there is something wrong with the quality of a patron's milk, if he is actually trying to care for it, the maker can often help him to locate the trouble after he finds out from which patron it is coming. The speaker had noticed many instances where a slimy curd, curds that had no body, and gassy curds, had been traced to some particular farm, and on visiting the farm he had been able to point out the source of the trouble, so that the patron could remove it. In most cases, after a personal visit there was no further trouble. Where there was bad water in the pasture, and the cows splashed it over the udder, the milk would often be badly infected, and in such it was necessary to fence off those places so that the cows could not obtain access to them.

OVER-RIPE MILK.

Some cheese had been rejected on account of having too much acidity; sour cheese was caused where over-ripe milk had been used. In some cases the patrons were coming in too late. If milk does not work fast, so that the whey is off in two and a half hours, it would not be considered over-ripe, but in many cases it worked much faster. To the patrons present he would say, do not let your milk get over-ripe. A good cheesemaker could make it up so that the cheese would pass inspection, but there will be a loss to the patrons. It is necessary for the cheesemaker to cut the curd very fine, and in this way a great deal of fat is lost that might be retained in the cheese, and the fine particles of curd escape with the whey. Again, to get the whey out of the curd properly, hard hand stirring must be resorted to. With the milky whey drained from the curd, much of the solids that might be retained in the cheese run into the whey tank. Again, a cheesemaker could make good cheese where there were gas organisms in the milk, if the milk were not too badly infected, but it was necessary for him to ripen this milk or use a heavy starter, so that there was a condition similar to that brought about by over-ripe milk. Tainted milk could be made up by a well-qualified cheesemaker so that when it was sold, before much age had brought out the bad flavor, he would get it off his hands without any loss, but cheese from tainted milk was certain to go off flavor sooner or later.

FEED FLAVORS.

The objectionable flavors from feed do not get any worse, like that caused by tainted milk. The cheese usually improves, especially if the curd is allowed to get firm and dry, and there is not an excess of moisture left in it. This would apply to cheese made from milk where turnips or rape had been fed. In some factories in the Brockville section, a practical way had been found out of the difficults of feeding turnips in the fall. The patrons agreed, when they opened the factory, that if any of them fed turnips, and the cheese were cut in price in consequence of the turnip flavor, the patrons who fed the turnips would pocket the loss. This arrangement had been found entirely satisfactory. Makers were too afraid of losing patrons, and actually injured each other by taking in milk that they knew would not make first-class cheese. Owing to this policy, many patrons were very careless in regard to how they cared for their milk, knowing that if it was rejected at one factory some other factory would be glad to get it.

(TO BE CONTINUED.)

Butter--From the Stable to the Table.

MILKING TIME.

If there be one time above all others when peace and quietness should reign supreme in the stable, it is during the milking hour. Let us reason out why we should not irritate or in any way excite the cow at this particular time.

First we will briefly consider what milk is, and how produced. The average composition of milk is: fat, 3.6 per cent.; casein, 2.5 per cent.; albumen, .7 per cent.; sugar, 5.0 per cent.; mineral matter, .7 per cent.; water, 87.5 per cent.

We know that milk is made from the food the cow eats, and that the food is first converted into blood; after that the process it undergoes is, as yet, largely a mystery.

There are two general theories advanced—the metamorphic and the transudation. The advocates of the first claim that the cellular tissue of the udder is built up and then broken down, and so changed into milk. This theory cannot be accepted as the only source of milk production, for it would be hardly possible for a cow giving from sixty to eighty pounds of milk a day to build up and break down her udder four or five times in the course of twenty-four hours.

The transudation theory is that the milk is simply filtered from the blood as it passes through the udder.

If this be true, then we would expect to find in the blood the same properties, to a large extent, as are in milk. Such is not so, for the blood contains but a small per cent. of the constituents found in milk. A combination of the two theories is a reasonable solution of the process of milk production, the fat, casein and sugar to a large extent being formed in the udder, while the other properties are filtered from the blood.

When is the milk manufactured? *Just while you are milking the cow*—all but perhaps a quart. That is the fact I want to impress the most deeply.

The manipulating of the teats excites the nerves in the udder, thus stimulating the milk secretion. Any harsh treatment, fright or unusual excitement prevents the nerve action in the udder. We say "The cow is holding back her milk"—in reality she has ceased to make it.

One hasty blow not only materially lessens the quantity of milk, but also greatly affects its quality, and experiments along this line have shown that it takes several milkings to bring a very sensitive cow back to her normal record.

If the nerves have no part in the milk secretion, then the horn-fly would not cause a shrinkage in the flow of milk, nor would the snapping and barking of the dog as he drives the herd from the meadow have a like effect.

To insure pure milk the atmosphere in which the cows are milked must be pure. Putting down hay or cleaning out the stable just before milking is a bad practice. The milk in passing from the teat to the pail through an atmosphere laden with stable odors and dust may become sufficiently contaminated to materially affect the flavor of the butter. For similar reasons we hear milking in the barnyard condemned, especially in dry, dusty weather.

I noticed in England the farmers had milking sheds in or near the pasture fields, and that the men had long linen ulsters which they slipped on when going to milk. I thought this a good idea, as it tended to cleanliness in milking and also to a saving of the clothes.

Before starting to milk, the flanks and udder of the cow should be wiped with a damp cloth to remove loose hairs and dirt, which otherwise might fall into the milk pail.

It is found a good practice to cut off the cow's switch and clip the hair from the hind quarters when putting her in for the winter. Endeavor as far as possible to have the cows milked by the same person, at the same hour, in the same place, and in the same order.

Milk with *dry* hands, vigorously and exhaustively. Nothing will prolong the milking period more than by getting the last drop, and remember the first pint has but one per cent. butter-fat, while the last pint has ten per cent.

Bacteriologists tell us the small amount of milk which has collected in the teat abounds with injurious forms of bacteria, while the remaining portion of the milk is practically germ free, and they recommend not allowing the first stream to go into the milk pail.

I have often heard a person say, "I can get more milk from that cow than anyone else," or "This animal will not let another person near her." Why is it? In such cases there is between the cow and her milker a sympathy and confidence. He has in some mysterious way crept into her affections, and it is her pleasure and delight to show her regard in the brimming pail. Does this sound sentimental? There is far more truth than poetry in it. Get a cow to love and trust you by feeding and caring for her kindly, and she will repay you by bringing you in additional dollars and cents.

LAURA ROSE.

O. A. C. Dairy School, Guelph.

Unequalled Practical Value.

I desire to congratulate you on the general high excellence of the FARMER'S ADVOCATE. In the amount of general valuable information of a practical character furnished by each number on matters pertaining to agriculture, I question if it has an equal in America.

THOMAS SHAW.

University of Minnesota.

Farm Tests of Cows.

BY PROF. E. H. FARRINGTON, WISCONSIN AGRICULTURAL EXPERIMENT STATION.

At the present time there is not much necessity of urging creameries to use the Babcock test. Within the past five years it has become almost universally adopted as a just and satisfactory means of determining the value of all milk delivered to both creameries and cheese factories in the advanced American dairy States. Creamery patrons can no longer sell milk to the factory by weight only, neither can the factory buy it in this way. It is generally agreed that milk ought not to be bought simply by the pound any more than a cow or a horse. We would all think it absurd to see or hear the statement that horses were quoted in the market at a certain price per pound, but such a statement is not much further behind the times than the practice of buying and selling milk by weight without testing it.

Since the practice of testing all milk at butter and cheese factories has become so well established, the justness of the plan has led many farmers to apply the same test to their cows. This, it seems to me, is the direction in which the use of the test should be pushed at the present time. Every farm that supports cows for the purpose of selling their milk ought to be provided with a pair of scales and a Babcock test. By weighing and testing the milk of each cow a sufficient number of times, the owner can keep himself informed of the actual performance of each cow. Records of this kind show the relative value of the cows as milk producers and aid in determining the actual profit or loss which should be charged to each cow annually. The farmer who wishes to keep cows that will support him, and does not intend to work for the purpose of supporting his cows, needs to understand that:

First—If 150 pounds of butter only pays for the yearly feed and care of a cow, then one producing only this amount or less is not paying a profit.

Second—One cow is often worth twice as much as another, or more than two cows, although there may not be a very marked difference between the total annual production of two cows. This may be illustrated by comparing the record of a cow that produces 152 pounds of butter with one producing 151 pounds. The former yields twice as much profit as the latter, provided 150 pounds represents the amount necessary to pay for feed and care, and a 250-pound cow makes twice as much above expenses as one with an annual production of 200 pounds of butter.

This is a side to the dairy cow question that a good business man will consider carefully. There are some dairymen who have been convinced that the time and money spent in weighing and testing the milk of each one of their cows is a profitable investment for them, and they could not be persuaded to abandon the practice of keeping records of the quality and quantity of each cow's milk. There are others, however, that have not yet reached this stage of development, and it was with the hope of reaching them that the writer undertook the testing of forty cows on six different farms. The owners of these cows had been sending milk to the Wisconsin Dairy School creamery for several years. None of them had a Babcock tester, and some did not have a suitable pair of scales for weighing the milk of each cow at milking time. By paying each one of these farmers one dollar per cow tested, I was able to induce them to weigh and sample the milk of each cow they owned for one day per week during an entire year.

METHOD OF MAKING THE FARM TEST.

The tests made on the different farms were all conducted on the same general plan. The milk of each cow was weighed and sampled at the morning and night milking one day each week. This testing day was selected by the patron. Each dairy was supplied with a pair of scales for weighing the milk of each cow at milking time, a box of bottles for milk samples, a small 1-ounce tin sampling dipper, and a record book. Each cow was given a number, which was also placed on the label of a 2-ounce sample bottle, the cow being known by this number throughout the test. About one-half gram of potassium bichromate was added to each sample bottle to keep the milk sweet until tested. The box of samples and the record book containing the weights of both the morning and night milk of each cow were sent every week to the University creamery, where the samples were tested; the tests were recorded on the patron's book as well as the permanent record at the creamery, after which the book and box of sample bottles were returned to the farm. This weekly sampling, testing and weighing continued throughout the year. The records thus furnished obtained data for determining the value of the milk produced by the different cows.

ACCURACY OF THE RECORDS.

The accuracy of such records as these is necessarily influenced by conditions common to nearly all farms. Milking is usually done with more or less haste, especially at the planting, haying or harvesting seasons. The milkers, as a rule, are not accustomed to the use of scales, and often consider the weight within one pound of the true figures to be "near enough." They do not understand the necessity of promptness in sampling the milk after it has been poured from one pail into another before the cream has begun to separate. In spite of these and other disturbing factors, our results show that tests of dairy cows can be made by the farmers themselves with sufficient accuracy to give a satisfactory knowledge of the performance of each cow.

PRODUCT FOR THE YEAR.

The total annual production of a cow was found by multiplying the average of the four or five daily weights of milk and of butter-fat taken each month by the number of days in the month, and adding the products together. The money value of the milk of each cow was found by multiplying the monthly weight of butter-fat by a certain figure which was one-half cent less than the average Elgin market price of butter for that month and adding the products together.

The extreme variation in the value of the butter of the cows on the different farms is shown in the following table:

RANGE IN VALUE OF ANNUAL PRODUCTS.

Received for milk of	Farm A	Farm B	Farm C	Farm D
Best Cow	$53.35	$56.30	$60.72	$56.49
Poorest Cow	28.72	44.83	37.96	39.60
Average Cow	36.30	50.00	48.83	44.12
Number of cows in herd	12	5	12	4

Since each farmer fed all his cows in the same way, there is no evidence to show that it cost farmer A any more to feed the cow that paid $53.35 than the one that paid $28.72. But these figures do not mean that cow No. 1 is worth $53 and No. 9, $28, because if the feed of a cow for a year costs $30, the profit or loss from each cow is shown by comparing the value of her annual product with this figure. If the cow produced $53 worth of butter from $30 worth of feed, she made $23 profit; but another cow producing only $28 worth of butter on this same amount of feed was a loss of $2 to the farmer.

An inspection of the receipts from the twelve cows on each of the two farms, A and C, shows that at farm A there were three cows which did not produce milk enough to pay for their feed. The entire herd only paid a profit of $75, and three of the twelve cows paid $50 of this amount, while the combined profit of the other nine cows was only $25. In this case three cows earned 100 per cent. more money in a year than was earned by nine other cows on the same farm.

On farm C the twelve cows earned a total profit of $228, instead of $75, as on farm A; but even at farm C there is a considerable difference in the cows. One earned only about $8 profit, while another earned nearly $31—a difference of about 400 per cent. in the annual butter value of these two cows to their owner. The record further shows that six of these cows paid 60 per cent. of the total profit for the year, and the other six paid only 40 per cent. of it.

LENGTH OF MILKING PERIOD.

A few of the cows tested were such persistent milkers that their owners had some difficulty in drying them off. These cows were among the greatest producers. The cows that were dry the longest time were generally the smallest producers. This is shown by the records at farm A, where several of the cows were dry for three or four months in the year.

Feeding for Milk.

Almost every dairy farmer has his own combination of foods for the production of milk. An extensive English breeder pins his faith to the following mixture: 2 lbs. each of decorticated cotton cake, bran, malt combs, and Indian meal, 20 lbs. mangels, pulped, and about a stone and a half per day of good sweet hay. It is high feeding, but where the milk can be disposed of at a fair price it should pay and pay well. No one need expect his cows to distinguish themselves at the pail unless they are liberally and judiciously fed.

GARDEN AND ORCHARD.

Tree Planting Associations.

The local horticultural societies which are being organized in some places in the Province of Ontario might render valuable service to the cities or towns in which they are located at this season of the year by encouraging public as well as private tree-planting, and the intelligent care and pruning of trees, and their protection from insect pests. These organizations can bring pressure to bear upon the municipal authorities so that proper provision will be made for the protection of street and park trees. Enthusiastic and well informed on the subject of tree culture, the officers and members of these worthy organizations can, by co-operating with aldermen or councillors, do much to awaken and sustain an intelligent public interest in this subject, preventing many losses through misdirected efforts, and aiding materially in permanently beautifying both public and private places. Municipal councils, and such officials as engineers, street and park commissioners, would doubtless gladly take advantage of this aid. An example of what can be accomplished in this way occurred in Kansas City, where a Tree Planters' Society was formed a short time ago. Since then 7,000 trees have been planted, 5,000 more provided for, and besides this the park commissioners having let contracts for 6,000 additional trees. The interest of the public school children was enlisted in the work, and they are credited with a considerable share of the honor in these results, which were accomplished in one year's time.

Preparing Bordeaux Mixture for Spraying

To the Editor FARMER'S ADVOCATE:

SIR,—I was interested in the excellent article on "Spraying," contributed to the issue of the FARMER'S ADVOCATE for April 2nd by Mr. G. C. Caston. It certainly contained many very useful suggestions on this important operation; and I was particularly pleased with his explanations of the various steps, for I believe that it is almost as important for growers to know *why* as *how*. But Mr. Caston made one mistake in his directions for preparing Bordeaux mixture, which might lead the beginner into trouble if the directions were followed "to the letter." He suggests using the *cyanide* of potassium as a test to determine when sufficient lime has been added, while it is really the ferrocyanide which is used. The two are entirely different substances. The cyanide is a hard, white, rock-like material with the chemical composition represented by the formula KCN, and is used in generating the poisonous hydrocyanic acid gas with which nursery stock is fumigated; while the ferrocyanide is a yellow substance with the chemical composition represented by the formlua $K_4Fe(CN)_6$, which dissolves readily in water, forming a yellow liquid. And it is, I am told, not poisonous in the least.

The use of this test depends on the fact that if any of the copper sulphate is present in the mixture you will get a red color on adding this test solution; that is, as long as the Bordeaux is dangerous to your apple trees this test will give you the red danger signal. The advantage of this method over the more common one of weighing out your materials is that with this you are absolutely sure when you have added sufficient lime, while with the other everything depends on the strength of the lime which is used, and any mason will tell you that lime varies greatly in its strength. There is also another advantage to be gained by the use of this test. It has been discovered by the experiments of two French scientists that what is called neutral Bordeaux mixture—that is, Bordeaux to which only enough lime has been added to change over all of the copper sulphate—that such Bordeaux is much less likely to be washed off the trees by rains than when either an excess of lime is added or not enough. The practical importance of this will be readily seen in any country where rains are frequent during the spraying season. It was further found in the experiments above referred to that freshly-prepared Bordeaux would adhere much longer than that which had been prepared for some time. This will mean that our common practice of leaving half a barrel or so of Bordeaux mixture when we finish our spraying and allowing it to stand for a week or so until we are ready to spray again is not a good practice, but we should as far as possible prepare only what we can use in a very short time after it has been mixed.

F. C. SEARS.

School of Horticulture, Wolfville, Nova Scotia.

Caustic Potash for Fruit Trees.

BY PROF. F. C. SEARS, N. S. SCHOOL OF HORTICULTURE.

A regular phenomenon of the domestic world is the annual spring housecleaning, when the whole establishment is overhauled from top to bottom, and all dust which may have escaped destruction during the year is ruthlessly hunted down and annihilated. To a less extent this is also the custom with the orchardist, yet it has always seemed to me that the latter might, with profit, copy still more from the good housewife in the zeal and thoroughness with which this annual rite is performed, and I know of nothing which will more materially assist the fruit-grower in his work of renovation than some form of caustic potash. It is the soap of the orchardist, and an exceedingly good brand it is, too. Either the rock potash (which can be bought for about 8c. per pound) may be used or the leachings from wood ashes, and one who has never tried them will be astonished at the improvement in the appearance of the trees. All old bark, lichens, moss and the like will be removed, and above and beyond all, it will rid the trees of the oyster-shell bark-lice which in many parts of Canada are one of the most troublesome insects with which the orchardist has to deal, and they are all the more to be dreaded because of their innocent appearance. At this season of the year these scales, as every fruit-grower knows, are merely the old shells with a quantity of eggs underneath, and the action of the caustic potash is simply to loosen the scales and allow them to be washed from the trees by the early spring rains. Of course, by the falling away of the old bark, lichens, etc., the tree is cleaned incidentally of myriads of fungus spores and insect eggs, and lastly, when the material used in spraying finally reaches the ground, as it eventually will do, it is exceedingly useful as a fertilizer for the trees.

If the rock potash is used it should be dissolved in the proportion of one pound to from three to five gallons of water, though the proportions may be varied still more and yet give good results. If the leachings from ashes are used, the amount secured from a barrel of ashes should make from one to two casks of most excellent spraying material, depending on the quality of the ashes. In applying this the tree should be made thoroughly wet throughout. There are two precautions to be observed in the application of this potash: 1st, it must be done at a time when the trees are dormant, since if applied to the leaves it will destroy them; 2nd, great care must be exercised that none of it gets on the hands nor any other part of the person,

since it is very caustic and the result will be anything but pleasant.

With trees which are very thrifty, with no bark-lice and no scales of old bark, which ought to be removed, treatment with potash may be altogether unnecessary (though I am not convinced of this even in such a case), but if your trees are the least rough in appearance or affected with lice, then try it and be convinced of its value.

The Vegetable Garden.

Whether vegetables are grown in the garden or out in the root field where horse culture is easily given, whether for market or the home table, the general rules to be observed by the grower are the same; or at least what will succeed in one case will not fail in any of the others. The condition for the successful germination of seed in the land is that it should be placed so as to have a reasonable amount of heat, moisture and air. To secure these conditions in practice, the seed should be imbedded in mellow soil, and this packed around it just firm enough to bring into actual contact and make sure of capillary action in the soil. If the soil is left loose over and around the seed, capillary action cannot continue, and the seed is liable to dry out unless the season is very wet; on the other hand, the soil must not be allowed to become too compact over the seed, or the young seedlings will not be able to push through it. The time of sowing the various garden seeds varies greatly. Some seeds, such as Spanish onion, lettuce and radish, may be sown as soon as the ground can be worked, while the seed of such tropical plants as corn, cucumber and squash, should not be sown until the ground is well warmed. The earlier sown, hardier seeds, are often frozen in the ground and perhaps covered with snow without injury; in fact, a covering of snow seems to help seeds of the hardy kinds to grow.

BEETS.

Turnip varieties being among the most delicious of the early summer vegetables, it is well to risk sowing early and a little thick in case of frost destroying a part. They can be easily thinned by hand when the plants are three or four inches high. In any case they should not be allowed closer than three inches in the row. The beet prefers a very rich, sandy, well-worked soil. Sow in rows about 16 inches apart in the garden, and wider in the field when horse cultivation is to be given. Cover the seed about one inch deep in mellow soil, pressing the ground firmly over the rows. As soon as the seedlings appear they should be cultivated with a wheel hoe to break the crust and kill weeds, and the cultivation repeated at frequent intervals. When the plants are eight or ten inches high they make excellent greens, and if then thinned to six or eight inches apart the bulbs will be ready to use in June and be good for the remained of the summer. For winter use the seed should not be sown till the last of May or first of June.

CARROTS.

English Horn and other early table varieties are much appreciated on the table, and are a profitable crop for the market gardener. This vegetable requires fine, rich, upland soil to do well. The seedlings are quite delicate when they first come up, and every precaution should be taken to have the land clean so that the small seedlings will not be overrun with weeds; the surface soil should be kept loose and mellow throughout the season. It is well to sow a few radish seeds among the carrot seeds, as the former comes up earlier and marks the lines of the rows so that cultivation can be commenced early. The seed should be sown very early in the spring, and will then produce roots large enough for table use by early summer. The main crop may be planted somewhat later and in rows wide enough apart to admit of horse cultivation. If the seed is good and the soil moist, fine and rich, about two pounds per acre is thick enough. Very thick seeding is undesirable, as the cost of thinning in such a case is considerable. It is best for the grower to have the soil right and seed right, then sow thinly so that thinning and weeding will be easily done. The plants should stand three to four inches apart in the row when thinned.

PARSNIPS.

Parsnips, if sown at all, should be in early, as the seed is slow to germinate, and if the ground becomes dry before the plants are up the crop is gone for the season. This crop is grown in the same manner as carrots, but is rather more

Spraying Calendar.

(Recommended by Spramotor Company.)

PLANT.	1ST APPLICATION.	2ND APPLICATION.	3RD APPLICATION.	4TH APPLICATION.	5TH APPLICATION.	6TH APPLICATION.
Apple. Scab, codling moth, bud moth.	When buds are swelling, copper sulphate solution and *Arsenites.	Just before blossoms open, Bordeaux. For bud moth, Arsenites, when leaf buds open.	When blossoms have fallen, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.	10-14 days later, Bordeaux and Arsenites.
Cabbage and Cauliflower. Worms, aphis.	When worms or aphis are first seen, Kerosene emulsion.	7-10 days later, if not heading, renew emulsion.	7-10 days later, if heading, hot water (130° F.) or Hellebore.	Repeat third in 10-days if necessary.		
Celery. Leaf blight, rust.	Ammoniacal copper carbonate at first appearance of disease.	Repeat first to keep foliage protected.				
Cherry. Rot, aphis, slug.	As buds are breaking, Bordeaux. When aphis appears, Kerosene emulsion.	When fruit has set, Bordeaux. If slugs appear, dust leaves with air-slacked lime. Hellebore.	10-14 days if rot appears, Ammoniacal copper carbonate.	10-14 days later, Ammoniacal copper carbonate.		
Currant. Mildew, worms.	At first sign of worms, Arsenites.	10 days later, Hellebore. If leaves mildew, Bordeaux.	If worms persist, Hellebore.	After fruit is harvested, apply Bordeaux freely.		
Gooseberry. Mildew, worms.	When leaves expand, Bordeaux. And for worms as above.	10-14 days later, Bordeaux. For worms as above.	10-14 days later, Ammoniacal copper carbonate. For worms as above.	10-14 days later, repeat third.		
Grape. Fungous diseases, flea-beetle.	In spring when buds swell, copper sulph. solution. Paris green for flea-beetle.	When leaves are 1-1½ inches in diameter, Bordeaux. Paris green for larvæ of flea-beetle.	When flowers have fallen, Bordeaux, Paris green as before.	10-14 days later, Bordeaux.	10-14 days later, if any disease appears, Bordeaux.	10-14 days, Ammoniacal copper carbonate. Make later applications of this if necessary.
Nursery Stock. Fungous diseases.	When first leaves appear, Bordeaux.	10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.	10-14 days, repeat first.
Peach, Nectarine, Apricot. Brown rot.	Before buds swell, copper sulphate solution.	Before flowers open, Bordeaux.	When fruit has set, repeat first.	10-14 days later, repeat.	When fruit is nearly grown, Ammoniacal copper carbonate.	Repeat five at intervals of 5-7 days if necessary.
Pear. Leaf blight, scab psylla, codling moth.	As buds are swelling, copper sulphate solution.	Just before blossoms open, Bordeaux; Kerosene emulsion when leaves open for psylla.	After blossoms have fallen, Bordeaux and Arsenites; Kerosene emulsion if necessary.	8-12 days later. repeat third.	10-14 days later, Bordeaux, Kerosene emulsion applied forcibly for psylla.	10-14 days later, repeat fifth if necessary.
Plum. Fungous diseases, curculio.	During first warm days of early spring, Bordeaux for black knot. When leaves are off in the fall, Kerosene emulsion for plum scale.	When buds are swelling, Bordeaux for black knot and other fungous diseases. During midwinter, Kerosene emulsion for plum scale.	When blossoms have fallen, Bordeaux. Begin to jar trees for curculio. Before buds start in spring, Kerosene emulsion for plum scale.	10-14 days later, Bordeaux. Jar trees for curculio every 2-4 days. For San Jose scale, Kerosene emulsion when young appear in spring and summer.	10-20 days later, Bordeaux for black knot. Jar trees for curculio. When young plum scale insects first appear in summer, Kerosene emulsion.	10-20 days later, Bordeaux for black knot. Later applications may be necessary to prevent leaf spot and fruit rot, use Ammoniacal copper carbonate.
Potato. Scab, blight, beetles.	Soak seed for scab in corrosive sublimate solution (2 ozs. to 16 gals. of water) for 90 minutes.	When beetles first appear, Arsenites.	When vines are two-thirds grown, Bordeaux; Arsenites for beetles if necessary.	10-15 days later, repeat third.	10-15 days later, Bordeaux if necessary.	
Quince. Leaf and fruit spot.	When blossom buds appear, Bordeaux.	When fruit has set, Bordeaux and Arsenites.	10-20 days later, Bordeaux.	10-20 days later, Bordeaux.	10-20 days later, Bordeaux.	
Raspberry, Blackberry, Dewberry. Anthracnose, rust.	Before buds break, copper sulphate solution. Cut out badly-diseased canes.	During summer, if rust appears on the leaves, Bordeaux.	Repeat second if necessary.	Orange or red rust is treated best by destroying entirely the affected plants.		
Rose. Mildew, black spot, red spider. aphis.	For mildew, keep heating pipes painted with equal parts of lime and sulphur mixed with water to form a thin paste.	For black spot, spray plants once a week with Ammoniacal copper carbonate, using fine spray.	For red spider, spray twice a week with Kerosene emulsion. Apply to under side of foliage.	For aphis, spray affected parts with Kerosene emulsion when necessary.		Kerosene emulsion must be used very dilute, as rose foliage is easily injured by it.
Strawberry. Rust.	When growth begins in spring, Bordeaux.	As first fruits are setting, Bordeaux.	As first fruits are ripening, Ammoniacal copper carbonate.	When last fruits are harvested, Bordeaux.	Repeat third if foliage rusts.	Repeat third if necessary.
Tomato. Rot, blight.	As soon as disease is discovered, Bordeaux or a clear fungicide.	Repeat first at intervals 7-10 days.				

*Arsenites referred to in the calendar include Paris green and arsenate of lead.

FORMULAS.

BORDEAUX MIXTURE.

	Canadian.	American.
Copper sulphate	4 pounds	6 pounds
Quicklime	4 "	4 "
Water	50 gallons	45 gallons

To destroy leaf-eating insects, add four ounces of Paris green. For peach, use three pounds each of copper sulphate and lime, and three ounces of Paris green, on account of the tenderness of the foliage. To dissolve quickly, place the copper sulphate in a cotton bag or basket, and suspend this in the vessel containing water so that it is entirely immersed. In another vessel slack four pounds of fresh lime with as many gallons of water. If the lime when slacked is lumpy or granular, it should be strained through a fine sieve or coarse sacking into the barrel containing the copper sulphate now in solution; then fill the barrel with water and it is ready for use. It should be used soon after being prepared. If the lime is air-slacked or impure, the right quantity can be ascertained by applying the ferrocyanide of potassium test. If the lime is deficient, a drop of the ferrocyanide of potassium (yellow prussiate of potash) added to the mixture will turn brown. Add the milk of lime till the drop of ferrocyanide of potassium remains colorless; then add a little more milk lime, to make sure that the strength is uniform, and fill the barrel with water.

COPPER SULPHATE SOLUTION.

Copper sulphate ..... 1 pound
Water ..... 25 gallons

AMMONIACAL COPPER CARBONATE.

Copper carbonate ..... 5 ounces
Ammonia ..... 2 quarts
Water ..... 50 gallons

The copper carbonate is best dissolved in large bottles, where it will keep indefinitely, as it should be diluted with water as required. For the same purpose as Bordeaux.

PARIS GREEN.

FOR FRUIT.

Paris green ..... 4 ounces
Water ..... 40 or 50 gallons

FOR POTATOES.

Paris green ..... 6 to 8 ounces
Water ..... 40 to 50 gallons

Test of Paris Green.—Put a small quantity into some common ammonia or hartshorn. If it is good the Paris green will all dissolve, leaving no sediment; if not, there will be more or less sediment remaining.

If this mixture is to be used on peach trees, one pound quicklime should be added. Repeated applications will injure most foliage unless lime is added. Paris green and Bordeaux can be applied togetner with perfect safety. The action of neither is weakened, and the Paris green loses all caustic properties. For insects which chew.

ARSENATE OF LEAD.

Arsenate of lead ..... 1 pound
Water ..... 150 gallons

HELLEBORE.

Fresh white hellebore ..... 1 ounce
Water ..... 3 gallons

KEROSENE EMULSION.

Hard soap ..... ½ pound
Boiling water ..... 1 gallon
Kerosene ..... 2 "

Dissolve the soap in hot water, add the kerosene, and churn with a pump, by directing the nozzles into the solution for 5 to 10 minutes until it emulsifies (or becomes of a thick, creamy consistency). This is the stock emulsion, and will remain in this state indefinitely. It must be diluted with water according to directions: From four times for the San Jose scale, when the leaves are off, to 20 times for aphis. For insects that suck, cabbage worm, worms, and all insects that have soft bodies.

NEW SCALE REMEDY.

The most satisfactory remedy for San Jose and other scales is now recognized to be crude petroleum oil, applied as a spray, either pure or diluted with water to the extent of 75 per cent., in the winter season. Summer applications of this material are not recommended.

CAUTIONS.

Do not mix the copper preparations in iron or tin; always use wood, brass or earthen vessels.

Study carefully the nature of the insect or disease, and select the remedy that is most likely to destroy it without danger of injuring the plants.

Never spray with arsenites while the trees are in blossom, as the bees will be poisoned; they are necessary to fertilize the flowers.

particular about the soil on which it grows. Then, too, in manuring the land for the crop, it is important to use only manure which is well rotted, as fresh manure seems to encourage the formation of side roots. On hard land, too, there is often a tendency for the roots to form side roots, whereas a thick top root is desired.

CABBAGE.

This crop is generally raised by sowing the seed early in a bed in rows twelve inches apart, and when the plants are large enough transplanting in the field where they are to be grown. On the farm a root field is a suitable place to grow cabbage, as the same sort of cultivation will answer each crop. There is usually less trouble from insect pests here than in the garden. Sowing the seed of cabbage in the field either alone or along with carrots is an easy and satisfactory way of growing the crop, as then no transplanting is necessary and a good yield is generally produced.

CAULIFLOWERS.

Cauliflowers are grown in much the same way as cabbage. The plants, however, are not so hardy in resisting cold weather, are more sensitive to adverse conditions, and should have more manure in the soil. As soon as the head commences to form, the outside leaves of the plant should be drawn together over the head so as to keep the sunlight away from it. Treated in this way, the heads will be nearly snow white, whereas if not protected they become more or less brown in color.

BEANS.

All beans are quite tender and should not be planted until the soil is warm and all danger of frost is over. The time for corn planting will answer well for beans. Bush beans of the various sorts are very easily grown and adapted to a great variety of purposes. For a field crop the seed should be sown two or three inches deep, in rows about three feet apart. On a smaller scale the land may be furrowed out with a one-horse plow or with a wheel hoe, and the seed sown by hand. The after-culture consists in keeping the land well cultivated with a horse hoe and free from weeds. Varieties of dwarf beans for use in a green state, such as string or snap beans, may be sown any time from the middle of May to the first of August, and with good prospects of a good crop of green pods.

RADISH.

The radish is a vegetable of very easy culture. It is a common practice to sow the seed of early kinds in hotbeds between rows of lettuce, or outdoors between or in the rows of beets, carrots, parsnips, etc. They will grow in almost any soil, but new land is best. The seed may be sown as soon as the ground can be worked, and successive sowings should be made every two weeks. It is best not to manure the land for radishes, but use rich soil that has been put in good order by some other crop. The seed is sown and the crop cultivated in a manner similar to turnips.

LETTUCE.

Lettuce is largely grown in greenhouses during the winter, in hotbeds and cold frames in the early spring and until severe weather in the autumn. Lettuce grown in hotbeds or cold frames may be transplanted in the open ground as soon as the soil will work easily in spring, but it should be well hardened off before being planted out. It will, however, stand quite a cold spell if properly hardened off, and as in the case with many other crops, the plants may be covered with earth on the approach of hard frost, provided it does not remain on more than a day or two. In the open ground lettuce should be set out about twelve inches apart each way. It is frequently grown between rows of early cabbage, cauliflower or other plants, where it fills up otherwise unoccupied space and comes off the land long before other crops need the room it occupies. For late use the seed may be sown in the open ground in drills one foot apart and the plants thinned to the same distance apart. It is customary also in the home garden to sow the seed and then cut off the young plants as soon as they are large enough to use; such lettuce, however, is not nearly so good as head lettuce, where the center is white, crisp and tender. It is well to thin out the young plants so that they stand three or four inches apart in the rows, and in cutting continue the thinning process so that the later plants will form good heads. Successive sowings, however, are necessary in order to materially extend the lettuce season. Like all leaf crops, lettuce needs plenty of rich, easily-available nitrogenous manure, and responds very quickly to small applications of nitrate of soda or weakened barnyard liquid.

SPINACH.

This crop is of easy culture. A supply may be had during the whole growing season by making a succession of sowings at intervals of about two weeks. Under good conditions it will be ready for table use six weeks from the time of sowing the seed. In planting it outdoors the rows should be about twelve inches apart. The seed should be covered about one inch deep and about forty seeds or more sown to a foot of row. Since it often starts poorly in a dry time, extra seeds should then be sown. The plants may be thinned out when too thick, and no matter how small, they can be used to advantage on the table. Spinach is often sown in the spring between early peas, cabbage, potatoes or other slow-growing crops. Spinach requires a very rich soil and plenty of well-rotted manure. To insure the best results from early spring sowings, it will pay those raising it for market to use nitrate of soda on the land in small quantities, say two applications at the rate of seventy-five pounds per acre, at intervals of two weeks after the crop has started. Where nitrate of soda is not used, hen manure is very desirable.

HEDGE OF SCOTCH PINES, 11 YEARS OLD.
Grown from imported seed; on the property of A. P. Stevenson, Nelson, Manitoba.

POULTRY.

The Natural Method -- Hatching Chicks with Hens.

For those who raise poultry on a moderate scale and in the natural season, the natural method is nearly always the best and the cheapest.

Mode of Hatching Chickens.—Except on a few occasions when I was very much provoked with some sitting hens, I have never been able to agree with those who give the broody hen a bad reputation; nor have I ever been able to see much sense in that particular teaching which lays it down as a law that the first thing to be sure of is that your hen wants to sit. I have set over three hundred hens in a season, taking many of them from the nests in the laying pens the first night they remained on the nests, and often giving them a nestful of good eggs to begin with, and rarely had a hen that did not settle down to business from the start—it she was in good condition and *broody*, not *sick*. The usual proportion of hens that would not "stick" was one in thirty-five or forty, but I have gone through an entire season in which more than three hundred sitters were used, and had only two desert their eggs. In handling smaller numbers of fowls, since that, on a rented place where things were not fixed up as they should be, I have had more annoyance with a dozen sitting hens at one time than I used to have with seventy-five or eighty suitably provided for, *and from stock which I had handled for some generations, and knew thoroughly.*

I tried to use judgment in selecting the hens, to discriminate between those which would make good sitters and mothers and those which would not. Anyone who tries to set every hen that goes broody will find results about as unsatisfactory as people generally do with incubators and brooders when they buy eggs from anywhere and everywhere.

The Hen.—A hen that is not in fair condition (neither thin nor grossly fat), or that does not feel hot to the hand when handled (with the hand under the body, and the fingers touching the skin), or that will not allow herself to be handled freely, after dark at least, should not be used. Nor should a hen having a vicious disposition be used, for it is of great importance that sitting hens should be easily managed. I have found large hens, Brahmas, Cochins, Langshans, and extra large Plymouth Rocks, usually as good sitters as small and medium sized hens, and better mothers. If they are not over-fat, and if the nests provided for them are large enough, they are not more apt to break eggs than others, and as mothers their size, long feathers, and quiet disposition give them an advantage.

Hens should be set where they will not be disturbed by other hens, visitors, children, dogs, cats, rats, mice, or anything else; and when many are set in the same apartment the nests should be of such construction that the hens can be released or confined at the will of the operator. In hatching with hens in cold weather it is always best to have nests to which the hens can be confined, and to make sure that the hens are not at any time away from the nests long enough to allow the eggs to become chilled.

Double nests are preferable when more than five or six hens are set in one apartment. Straw, hay or excelsior may be used for nesting material. Soft hay or straw of medium length is best. A nest of coarse, long material is too springy, and one of short cut stuff does not hold its shape well. It is a good plan to dust the nest well with insect powder when the material is put in it. If the hens were free from lice they need not be powdered until the eleventh or twelfth day. Then if they are given another good dose a week later, the chicks should be as free from lice when hatched as any incubator-hatched chicks.

In the summer of 1898 I raised only about eighty chicks, and, as with so small a number I could rout the lice in a hurry, even if they did become numerous, I decided to change from my usual plan of giving the lice no opportunity to establish themselves, and use an insecticide only when I saw it was needed. The hens were treated for lice during incubation. The coops were kept clean, but the chicks had no dust baths other than they made for themselves.

To Go Back to the Sitting Hens.—When any considerable number of hens is to be set, it is best to have a regular day, once a week, for setting them. It is much easier to keep things in order this way than if hens are set whenever they happen to be ready, or whenever the eggs are ready. And when hens are set only once a week, it is a good idea to have the nests ready a few days in advance, that broody hens may be transferred to them and allowed to incubate nest eggs until the day for setting comes around. This takes them away from the laying nests, and often prevents egg-breaking and egg-eating, which are both fostered when broody hens are allowed to quarrel with the layers for the possession of nests.

Unless the hens are very docile, wait until dark to remove them to the nests they are to occupy. Have the eggs all ready in the nests. Move the hens quietly, without exciting them, and as you place each hen on the nest, cover it with a piece of burlap to keep out the light next morning, and keep her quietly on the eggs until the day is well advanced. A hen that leaves her nest early after one night on the eggs is hard to persuade to settle down on that nest again.

The best food for sitting hens is whole corn. This, with a dish of clear water, a box of grit, and a place to dust themselves, is all they need. If convenient, they should have the opportunity to go outdoors every time they leave the nest. This is not absolutely necessary, but hens allowed this privilege keep in better condition, and generally give better hatches of stronger chicks. In winter weather the hens should not remain away from the nest more than twenty minutes. In warmer weather, they may, as a rule, safely be left to follow their own inclinations, though the keeper needs to keep an eye out to see that none of them abuse their privileges.

A close watch should be kept for fouled nests and broken eggs, and when from either cause a nest becomes filthy, it should be cleaned at once, the nesting material replaced, and the eggs washed clean in warm water. Broken eggs and fouled nests are mostly the fault of the keeper. Hens do not foul the nests unless confined to them too long; and unless over-fat and too heavy, they rarely break perfectly formed, strong-shelled eggs in a properly-made nest.

Fertility an be determined about the fourth or fifth day for white-shelled eggs, and two to four days later for dark-shelled eggs. When hens are set once a week, a good plan is to test the eggs in the early part of that day, and double up sittings whenever it can be done to advantage after the infertiles have been thrown out. Then a part of the hens set the previous week can be re-set at the same time as the new lot. In the case of eggs with very dark, thick shells, fertility cannot always be determined on the seventh day, but with most eggs it can.

When the Chicks are Hatching watch them closely. Especially note whether any hens become restless and uneasy when the chicks begin to break the shells. From then until the chicks are removed from the nests is the most trying period of all. Some hens, which up to this time have been model sitters, get so restless now that they crush the chicks almost as fast as they leave the shells. This trampling in the nest, though, is not always the fault of the hen. Sometimes the chicks are weak because the parent stock was in poor condition. A puny, sluggish chick is more apt to be trampled than a smart, lively one. When you get one of these nervous, fussy, chick-mashing hens, and are not able to substitute for her, you are in a most aggravating position, for in spite of all that you can do she will mash the most of the chicks before they are ready to leave the nest. But if you have hens sitting which are not yet hatching, you can generally change them, and save the chicks.

Chilled Eggs—It is sometimes a matter of considerable importance to most poultry-keepers to

know how much chilling eggs will stand without injury. If eggs get cold, it is as well to continue incubation, and note results. Sometimes their condition can be determined by testing. If there is any reasonable hope that the eggs have not been injured, give them the benefit of it, and run the hatch through. I knew a case where a hen set out of doors in a drygoods box in March was found stiff and cold on her nest at daybreak one morning, when the thermometer was some degrees below the freezing point. The owner thought that without doubt the eggs were ruined, but out of curiosity put them under another hen, and got about a fifty per cent. hatch of vigorous chicks, one pullet from which made the phenomenal record of sixty-eight eggs in seventy-two days before December 1st in the same year.

When chicks are hatched from chilled eggs, I think the poultryman ought to determine from their apparent vitality whether or not it will pay to try to rear them. A puny, weak chick, no matter what it came from, ought to be killed as soon after hatching as it shows for just what it is. It don't pay to fool away time and waste food on chicks that did not get a right start.

Another point that puzzles some is to know how far it is advisable to help chicks out of the shell. As a general proposition, the chick that cannot get out itself is not worth helping out; but if, after all the others are out, those that have chipped the shell and progressed no further, appear strong and lively, I think it worth while to make an effort to save them. Break the shell gently, following the line the chick would make as closely as you can, and remove the cap. If the membrane has not adhered to the chick, it should be left to get out without further assistance. If the membrane is dry and adhering to the down, moisten it with warm water, or, better, saliva, and manipulate it gently with the fingers until it has become detached. If the chick is perfectly formed and gets out of the shell without bleeding, the chances of life are in its favor.—*Farm Poultry.*

How to Obtain a Flock of Thoroughbred Fowl at a Small Cost.

"Were you at the market on Saturday?" This question we often hear asked. "What had you in?" is generally the next question, and in nine cases out of ten the answer is: "Butter, eggs and chickens." "What did you get for chickens?" "Oh, mine were not very good; I got 45c. a pair for a few, and 35c. for the rest." "Why," says the first speaker, "I got 75c. a pair for chickens last Saturday." "Oh, yes, but yours were thoroughbreds, mine were all kinds." Now, how do people get all kinds? For example, here is one way: I met a farmer the other day, and he said: "How's the chickens? Are you still breeding thoroughbreds?" I said, "Yes, wouldn't have anything else." "Well," he says, "I want a couple of settings of eggs after a while." Now, after a while means some time, and some time generally means forty cent chickens in the fall. I said, "All right; I suppose you have a good flock of thoroughbreds now?" He said, "No, we have all kinds." Now, I happen to know why he has all kinds instead of thoroughbreds. About four years ago he bought two settings of Barred Rock eggs, and got seventeen cockerels out of the two settings. The first time he met the breeder he got the eggs from, he accosted him with: "Say, the chickens out of them eggs are no good, they are all roosters. I will trade you fifteen of them for pullets." The breeder said, "All right; he would not trade his own pullets, but he would get them for him." He said, "All right; any kind would do." The breeder went and bought fifteen half-bred Rock pullets from a neighbor for 40c. a pair, and got the fifteen thoroughbred Barred Rock cockerels for them. He killed six pair of them the next week, and got 75c. a pair for them. He kept three of the best and sold them later for $1. The man who raised these cockerels, bred from the half-bred pullets he got in the trade, and to-day he has, as he says, "all kinds." Now, if these cockerels had been all kinds, would they have brought 75c. a pair on the market in September? I think not. If the pullets had been thoroughbred, could they have been bought for 40c. a pair? I think not. My experience is, that it costs no more to keep a flock of thoroughbreds than all kinds. The question with a great many people of limited means is, "How can a flock of thoroughbreds be obtained at a small cost?" There are two ways of getting a flock of thoroughbreds. One is to buy about ten pullets and a cockerel. These would cost about $12—more than a great many people would care to pay, and about half what some others would pay. The other way is to buy eggs, and with ordinary good luck with the chickens, I think a person could get as good a start, with the chance of a better. From six settings, at a cost of $5, a person should (barring accidents) raise enough chickens so that after selling enough to pay for the eggs he would have enough pullets left to start a flock with. The next season sell all the cockerels and buy another to mate with the pullets. After the first year, buy at least one setting of eggs each season. By doing this you can, with good luck, have your cockerels each season for nothing, by selling enough to pay for the eggs. Never sell your good pullets if you wish to have and keep a flock of good ones. Now, to those who have all kinds, and wish to obtain a flock of thoroughbred fowl at small cost, I say buy eggs, and when you go to market with chickens have thoroughbreds, worth 75c. a pair, and not all kinds, worth about half that price.

W. J. CAMPBELL, Peel Co., Ont.

QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

Veterinary.

RESPIRATORY TROUBLE IN HORSE.

HORSEMAN:—"I have a horse that took a cough and running at the nose, about the first of October. In a few days began to cough out large pieces of matter. Was out in a shower of rain; the cough stopped, breathing became difficult. Spells—perhaps a few days at a time—he would be better. He has been getting worse all the time. During the month of January for 4 or 5 days at a time he would not take food or water; for the last few days he has drank nearly 2 pails of water each day and eats a little grain and hay, but looks very bad; he is very bad in the wind. The trouble seems to me to be all in the throat. There never was any swelling in the throat nor any other part; the last few days he is a little swelled in the sheath."

[Your horse is affected with some chronic complication, resulting as a sequel to influenza. The trouble may be, as you think, in the throat, due either to a thickening of the lining membrane of the air passages or to a shortening of some of the muscles of the larynx. It is doubtful if he will ever again be sound, but it is probable the symptoms can be relieved to a considerable extent. Blister the throat with the following liniment: Oil of turpentine, 3 parts; raw linseed oil, 3 parts; liquor ammonia Fortier, 1 part. Rub the throat twice daily until it blisters, then cease the use of the liniment and apply a little sweet oil every day until the roughness disappears; then rub with the liniment again, and so on. In the meantime, give 1½ drams iodide of potassium, pulverized, three times daily. He will probably eat the powder in bran or boiled oats, or take it in his drinking water. Of course, if the lungs are the seat of the trouble the above treatment will be of no avail. From the symptoms given, I think the trouble is in the throat, but it would be well for you to have a veterinarian examine him in order to make certain.

J. H. REED, V. S.]

CHRONIC INFLAMMATION OF THE LYMPHATIC GLANDS, AND INDIGESTION.

CONSTANT READER, Neepawa:—"1. I have a 3-year-old colt with one of her hind legs swoolen quite large. I noticed it first last July; then the swelling only appeared when she was standing idle for a few days. Now the swelling is quite large, and remains so even when exercised. Sometimes for a week or so the swelling is larger than at other times. About a month ago it broke out on the inside of the leg, just below the knee, and some matter came out of it, but the sore is now healed up.

"2. Have another horse 16 years old. When put to steady work, refuses to eat, but seems to have a good appetite when only worked lightly. Fed on green oats, sheaves, oat straw, and oats."

[1. The lymphatic glands of the affected portion of the limb are in an inflamed condition, and the case being of 8 months' standing, it will be somewhat difficult to treat it successfully. Prepare the animal for physic by feeding exclusively on bran-mash diet for sixteen hours, and then give the following purgative ball: Barbadoes aloes, 7 drams; powdered ginger, 2 drams; syrup or soap, sufficient to form a ball. Continue the bran-mash ration until the physic has ceased to operate. After this, give, morning and evening, in food for two weeks: iodide of potass. and nitrate of potass., of each 1 dram; powdered gentian, 2 drams. Paint the leg once daily for four days with strong tincture of iodine (iodine, 6 drams; iodide of potass., 5 drams; alcohol, 8 ozs.). Allow one week to elapse and wash the leg thoroughly with warm water and castile soap, removing all scabs and scruff from the skin, and then repeat the application of the tincture of iodine. Repeat this treatment for at least four times, strictly observing the above directions.

2. Your horse being an aged animal, I would advise you to have his teeth carefully examined, if possible, by a competent person. I would also advise you to change his fodder from oat straw to good hay. Give every night in bran mash for two weeks: nux vomica, 1 dram; powdered gentian and bicarbonate of soda, of each 2 drams.

W. A. DUNBAR, V. S., Winnipeg.]

INFLAMMATION OF THE BLADDER IN RAM.

D. M., Grey Co., Ont.:—"I have just lost a valuable ram, from what seems to me inflammation of the bladder, as that organ was filled to its utmost capacity and terribly discolored; the hind quarters were also inflamed. What treatment would you advise should the like occur again? The animal had daily access to salt and water, was fed roots and grain mixed with cut oat straw once a day, pea-straw and clover hay to pick at when he wished to. I used salts, also saltpeter, without effect. Success to the ADVOCATE."

[The writer has lost several rams from this cause, and it invariably occurred with sheep that had been rather closely housed for considerable time, and at the same time highly fed. Preventive treatment has been the only successful one with us. It consisted of greater freedom and less nutritious feeding. When a sheep is attacked it would be well to rub spirits of turpentine along the course of the urethra, up and down between the hind legs.]

LAMINITIS.

SUBSCRIBER, Indian Head:—"I have a mare seven years old which became stiff while standing in the stable. She stands with her fore feet forward and her hind feet spread apart. It appears to hurt her to back out of the stall. She had a colt last spring. She feeds well, and her water appears to be all right. Can you tell me what is the matter with her, and what treatment would you prescribe?"

[You have not mentioned how long your mare has been "stiffened," which, in assisting to arrive at a correct opinion of the case, would have been very useful information. It is, however, evidently a case of laminitis (inflammation of the feet), either of the subacute or chronic form, caused by the animal being compelled to stand in a constrained position on a plank floor for an unduly prolonged period. I would advise you to put the mare in a roomy box stall, deeply bedded with sawdust, chaff or short straw. Remove all superfluous horn from the soles and walls of the hoofs, and soak the feet in tepid water three hours daily for one week; then apply the following blister to the coronet of each foot: Powdered cantharides, four drams; vaseline, three ounces (mix). After three weeks have the feet carefully shod with fairly heavy ordinary-seated shoes. Do not draw the nails too tightly. Give moderate daily exercise on soft ground. Remove all mud or clay from the feet every night and stop with linseed meal poultice. Keep the bowels open by giving, every alternate night for one month, a bran mash, made by boiling a large teacupful of flaxseed in sufficient water to scald four quarts of bran. Into each mash put a large teaspoonful of nitrate of potash.

W. A. DUNBAR, V. S., Winnipeg.]

KICK BELOW STIFLE.

J. M., Lennox Co., Ont.:—"I have a horse that got kicked on the hind leg, on the outside, below the stifle joint. He got very lame about 36 hours afterwards and could not put his foot to the ground or bear any weight on it. It swelled a great deal on the inside as well as the outside of leg. We called in a veterinary, and he ordered it to be bathed with warm water, and gave a wash to put on it. The horse stood on three legs for two weeks and then fell. We put him in slings, and after two weeks in them they broke and he fell again; both times on the sore leg. After bathing for three weeks, the V. S. tried blistering, but it seemed to have done no good, and we are once more bathing it, but he has no use of the leg."

[It is not probable your horse will recover. The result of the kick was to set up inflammation of the covering of the bone, and also involving the joint. It is possible the bone may be shattered, but not displaced. Erysipelas has resulted, and it will probably prove fatal. He should be again placed in slings, which should be so constructed that he cannot get out, and so strong that they will not break. If any abscesses are formed, they should be opened and the pus allowed to escape, and the opening flushed out with warm water twice daily, and a little carbolic lotion, about one part carbolic acid to 70 parts water, injected after the flushing. If no abscesses are formed, I think bathing with warm water better than blistering. Feed him fairly well, and give 3 drs. pulverized hyposulphite of soda in bran or boiled oats three times daily.

J. H. REED, V. S.]

CEREBRO-SPINAL TROUBLE IN SHEEP.

D. C. L., Haldimand Co., Ont.:—"I have seven Southdown ewes that I feed oats, clover, hay, and different kinds of straw or chaff. They have a comfortable pen and liberty in the day time of the yard. They seemed to be in a fine, healthy condition until about four weeks ago, when one took sick, and after a few days died. Since then two more have died. When first taken sick they would get up in the mornings dizzy and their limbs a little paralyzed. After about half an hour they would be able to go into yard, and appeared as well as ever. They continued this each day, and each day getting worse. In about a week's time they became so bad that they were unable to move at all, and soon died. They were all within a few weeks of lambing, and on opening them after death I found each one of three contained three strong, healthy-looking lambs. The lambs looked large enough that any one would do for a single lamb. I can find no cause for death. Kindly let me know what is the cause of death, and what remedy to use in case the others have the same trouble."

[It is impossible to make a positive diagnosis of the disease affecting these sheep, without more definite ante-mortem and post-mortem symptoms. The ante-mortem symptoms point to disease of the brain and spinal cord. Such symptoms might be caused by indigestion or constipation, by impure or decaying food, etc., or water of poor quality, and contaminated, or by "grub in the head." In the latter case there would be snuffling and a discharge from the nostrils. I would advise the administration of a purgative to each animal, say 6 ozs. raw linseed oil, the dose to be repeated in 24 hours if the first fails to act. Feed carefully with limited quantities of food of good quality. If any more show symptoms of disease call in a veterinarian, and if any die take the carcass to a veterinarian and have him hold a very careful post-mortem, examining all organs, even the brain and cord, and also the sinuses of the head, and it is probable he will be able to locate the disease.

J. H. REED, V. S.]

ENLARGEMENTS ON HIND LEG.

A. M.:—"I have a horse that sprained the hind tendons of his hind ankle, which made him very lame for a time. He got over the lameness, but a lump remained just above the hind part of his ankle. A hard lump also appeared about two inches below the spavin joint, resembling a splint. I wish you would prescribe a cure."

[You don't mention the nature of the lump above the fetlock, but I presume it is a soft, fluctuating tumor, called a wind gall or bursal enlargement. These are hard to remove. If the horse could have a long rest, repeated blistering would reduce the enlargement, but if he cannot be given a rest, about all you can do is to apply cold water for half an hour or longer two or three times daily, and keep a bandage with medium pressure around the joint when he is standing in the stable. This is, of course, considerable trouble, but is usually followed by good results. The other lump, which you say is hard, is probably a splint, which is a bony enlargement. In most cases the size of the lump will gradually decrease spontaneously, but this process can be hastened by hand rubbing or blistering.

J. H. REED, V. S.]

PLAYFULNESS OF YOUNG PIGS.

G. A. T., Dufferin Co., Ont.:—"I have a litter of pigs about two months old. They are starting to root each other a great deal on the sides. I have had pigs do it before till they would be raw on the sides, and they do not thrive well. Please tell me what is the cause, and what can I do to prevent it?"

[The habit young pigs sometimes acquire of rooting each other is not a disease. It may be called a vice, and may be due either to playfulness and want of exercise, or to hunger. The remedy is to give plenty of exercise, and if this does not stop the habit, if possible separate them, putting two in each compartment. If scarcity of room will not allow this, ring them. J. H. REED, V. S.]

Miscellaneous.

GROWING RAPE.

J. D., Norfolk Co., Ont.:—"Would you be kind enough to answer the following questions, as soon as possible:

"1. How much rape seed is required per acre?

"2. Best way to sow same, drill or broadcast?

"3. Would it be good to pasture young calves on?

"4. If in drills, how far apart would you make the rows?

"5. How often would you cultivate it—our ground is a very stiff clay?

"6. What time in the spring would you advise to sow for early pasture?"

[1. Four pounds per acre, broadcast, or 2 pounds in drills.

2. If land is clean and rich, and labor is scarce, sowing broadcast should give good satisfaction; but where land needs cleaning, and the crop can be attended to, sowing in drills is decidedly to be preferred, as in that way soil moisture will be preserved and the crop kept growing.

3. After rape is 15 inches high, calves will do exceedingly well on it. Care should be taken to accustom them to it gradually, and should scouring threaten, give daily feeds of wheat bran, dry.

4. From 26 to 30 inches.

5. Once a week would not be too often for best results.

6. For early pasture, just as early as the ground is warm and ready for the seed. For late pasture, from June 20th to July 1st gives best results, but a fair crop may be grown in a favorable season, sown as late as August 1st.]

OPEN JOINT IN HORSE.

J. O., Huron Co., Ont.:—"In looking over back numbers of your very highly esteemed paper, I cannot find any remedy for an accident that occurred to a horse of mine, I think from a bruise on the fetlock joint of the hind leg. He has been unable to put any weight of any account on injured leg, or will not even lie down, seeming to suffer considerable pain; joint swollen some. After one week's suffering, broke on inside of joint, and ever since has been discharging corruption of a yellowish to a red tinge; and, also, I think the oil is escaping either from the joint or tendons. Horse has good appetite, eats and drinks. His pulse and temperature about right; failing in flesh pretty fast. Have been poulticing with flour and oatmeal this last week. Please give me the best treatment available, as I would like to get him around for the spring work. In case of oil escaping from joint, do most cases treated in a proper way recover, and about what length of time do I need to expect the horse to mend?"

[This horse is suffering from open joint, and from the description of the case we are inclined to think it will be a long time before a complete recovery, if ever, may be expected. Clip the hair closely all around the entire joint, and rub in the following blister for 40 minutes: Iodine crystals, 1 dram; biniodide of mercury, 1 dram; powdered cantharides (Russian), 1½ drams; lard, one ounce; all well mixed. Oil on third day with sweet oil. Apply equal parts turpentine and oil two or three times daily to the wound. Feed the horse well, and give him a teaspoonful of the following tonic twice a day in his feed: Powdered gentian, 2 ounces; bicarbonate of soda, 2 ounces; nitrate of potash, 2 ounces; powdered nux vomica, 1 ounce. Well mixed, and keep in a dry place.]

SILO FOR SMALL HERD — MIXED GRAIN CROP FOR FEED.

A READER, Norfolk Co., Ont.:—"I have been a subscriber since December, '99. Think your paper a most valuable one. Have already received a great deal of information about farming. I think the FARMER'S ADVOCATE is as good as money to those who will read it and act on what they read. Kindly allow me to ask a question or two:

"1. Is there enough profit in a silo for a person to hire money to build one. If so, what sort of material would you advise one to use under the circumstances? Also, how large should one be built for feeding twelve head of cattle?

"2. Is there any advantage in sowing a mixed crop of spring grain (for chop) over sowing separately, then mixing after threshing. If so, what proportions would you sow of each to the acre—barley, peas and oats? My land is a clay loam."

[For all a silo need cost, we have no hesitation in saying that it will pay to hire money to construct one. Under the circumstances, as we judge them, probably the round stave silo will answer all the requirements satisfactorily. Twelve head of cattle getting thirty pounds daily of silage from Dec. 1st to May 15th will require about 30 tons, and if it is wished to provide for two months' feed in the summer, a 40-ton silo should be built. A round silo 10 feet in circumference and 20 feet high will hold 30 tons, or it may be better to make it nine feet in diameter and 24 feet high, as in the latter case less surface would be exposed to the air. Such a silo would require 660 feet of two-inch plank and five five-eighths inch round iron bands. A forty-ton silo would require to be 10 feet in diameter and 25 feet high, and would require 825 feet of plank to construct it and six bands to hold it together. It is quite practicable to build a silo 24 feet high by using plank 12 feet and 16 feet long and six inches wide, by cutting part of the 16-foot plank in two and breaking joints. There is no need of bevelling the edges, but the inside of the planks should be dressed.

2. It has been found to be of decided advantage to sow coarse grains mixed rather than separately for a return in bushels of grain harvested. It will be necessary to select varieties of the different grains that will ripen as nearly as possible together. This can be done with general sorts of oats and peas grown, but we would advise using two-rowed barley, as it ripens later than the six-rowed sort. The proper quantities would be five pecks of oats, three of barley and two of peas. More peas than this bothers the binder at work.]

KAFIR CORN — HEN MANURE.

G. L. F., Cumberland Co., N. S.:—"Would you kindly give me the culture for Kafir corn; also the value of hen manure as a fertilizer? What garden produce is it good for, and the quantity in which it should be applied?"

[Kafir corn is a Southern plant, and is not likely to prove of much value in Nova Scotia or any other part of Canada. It belongs to the group of sorghums that contain little sugar. The plants grow erect, with thick, short-jointed stalks, bearing broad, deep green leaves. The plants average four and a half to six and a half feet high, bearing compact, erect heads ten to fifteen inches in length. It is particularly suited to such climates as Kansas, where it is grown both as a grain crop and as a hay or fodder crop. Being a warm-weather plant, it makes slow early growth, and should not be planted until the ground becomes warm. On cold soils and soils that wash, surface-planting is best. Plow the ground in the fall, thoroughly pulverize it just before planting, and plant in rows three to three and a half feet apart, dropping single seeds an inch apart in the row. Plant about the same depth as wheat. The seed may be sown with an ordinary grain-drill, stopping all but two holes, using a bushel of seed to five acres of land. It may, too, be planted in hills, the same as corn. A mellow seed-bed is necessary, and the land should be harrowed and rolled after sowing so as to firm the soil around the seed. Cultivate the crop the same as for Indian corn by frequent surface cultivation. In Kansas the crop is usually harvested with the corn binder, and put in large shocks to cure. In Kansas, Kafir corn yields several bushels per acre more than Indian corn.

2. According to prices of commercial fertilizers, fresh hen manure is valued at about $10 per ton, and partially dried at about double that price, from their chemical contents. Hen manure mixed with soil, coarse manure or sand, in equal quantities, will serve as a valuable dressing for potatoes, corn, tomatoes, cabbages, or roots of any kind. About one ton per acre of poultry manure, half strength, should be a satisfactory dressing.]

CROP TO SOW FOR HAY.

M. D., Leeds Co., Ont.:—"I have an acre and a half of gravelly soil. Would like to know what mixture of grain would be best to sow on it, to cut green for winter use for horses. Please tell the proportion in which the different seeds should be sown, and dates of sowing and harvesting?"

[For eight years in succession, an experiment has been conducted at the Ontario Agricultural Experimental Farm, by sowing nine different proportions of peas and oats, in order to determine which mixtures, and what quantities of seed, would give the best results in the production of green fodder or hay. The mixture of two bushels of oats and one bushel of peas per acre produced the heaviest yield and best quality of food. The mixture should be sown as early in spring as the ground will work well, and should be harvested just as the oats are coming into head.]

GROWING BUCKWHEAT.

C. E. S., York Co., Ont.:—"I wish to grow about five acres of buckwheat, and I would like to have a few hints from some of your readers who are experienced in growing the above cereal. 1st. What preparation does the land require? (It has been plowed twice last fall.) How much seed per acre to sow, and which is the better way to sow it, drilled or broadcast?

"2. Of what value is the grain for hog or cattle feed compared with other grains, say peas or barley or corn?

"3. When is it ready to harvest, and is the straw of any value? I have been told that the straw is not good even for bedding, as it creates an itch upon hogs or cattle that is bedded with it. I might just say that I think your paper is the best agriculture paper printed, and I would not like to do without it."

[1. Land plowed twice last fall should be put in fine shape for seeding with buckwheat by the use of the cultivator and harrow. We would recommend cultivating the ground well three times, about ten days apart, commencing about May 10th. Four to five pecks of seed per acre, if sown with drill, is a good seeding. It may be sown any time from June 5th to 20th.

2. The grain of the buckwheat plant is little used as a stock food. It has a fair feeding value, however, somewhat lower than the leading cereals. It is claimed to have a heating effect on the blood, so that it should not make up more than half a grain ration. It is relished by fowls and may safely be fed once a day. The opinion is held that the straw creates an irritation to the skin of animals lying on it. The crop ripens in about 90 days, and should be harvested when the seeds are nearly all black in color, and firm.]

SETTING OUT SPRUCE.

W. E. A., Oxford Co., Ont.:—"Will you please let me know when is the best time to put out spruce trees, and what is the best size to be sure of them living? I have planted them twice about 12 or 14 inches high, and they have all died the first summer. I want to plant them on a lawn. Is it a good plan to water them?"

[Many persons have been persuaded to buy from nursery agents quite young trees that have not been transplanted more than once, or probably not at all, since they can be supplied at a very low rate per hundred. This is altogether an expensive and slow means of getting shelter or ornamental evergreens, as when planted out singly a large percentage of them generally die. The trouble is they have not sufficient root growth to support them in their new and often exposed quarters. For lawn planting, where form of the tree is an important consideration, trees less than 3 to 4 feet should not be accepted, and they should have been transplanted at least three times in the nursery. The trees may be planted any time in May, and the earlier the better after the ground has become warm. There are differences of opinion about watering. If a season is tolerably moist, the ground should be worked around the tree for three or four feet once a week to save the moisture. Mulching heavily with wet straw or coarse manure is also a good plan. If the season is very dry, and there is danger of the ground drying out badly, watering will be necessary, and when commenced it must be followed regularly throughout the dry season. The water should not be poured on the ground at the base of the tree, but holes should be made some distance away on two sides—probably eighteen inches—with a crowbar, and the water poured into them. In this way the water will gradually soak to the roots without causing the surface to bake hard with the sun.]

EWE DISOWNS HER LAMB.

AN OLD SUBSCRIBER, Lincoln Co., Ont.:—"I have a ewe with twin lambs now two weeks old, and she only owns one. Can you advise any remedy?"

[It is not uncommon for a ewe, especially with her first produce, to disown one of her lambs, and it is not always an easy matter to make her take to it again. We have met success in placing the ewe's head between stakes for a time, and in milking her own milk on the back and tail of the rejected lamb. We have also found it a good plan to cut their tails off and allow the blood of the favorite lamb to run on the back and rump of the other one. We would also recommend removing the favorite lamb for a few days, simply allowing it to suck three or four times a day, and giving it, if necessary, a little help with a recently-calved cow's milk. Of course, the ewe and lamb should be penned off from the rest of the flock.]

STUMP DESTRUCTION BY SALTPETER A MYTH.

On page 199, in our issue of April 2nd, S. H., Dundas Co., Ont., asks about the value of saltpeter as an aid in destroying stumps. It now comes to our notice that the Hatch Experiment Station of the Massachusetts Agricultural College gave the reputed method a fair trial by treating 50 stumps, of various kinds of wood, by boring them according to directions, and inserting saltpeter and water, and plugging the hole. This was done on December 11, 1895, and in the following July the holes were filled with kerosene, and an attempt made to burn the stumps. It was found that not even the oil would burn. A portion of the stumps were left till June, 1897, when another attempt was made to burn them, using a low-test oil. The method is now regarded as a complete failure.

RATION FOR BULL—COMMERCIAL FERTILIZERS—GYPSUM FOR CORN AND PEAS.

SUBSCRIBER, Lanark Co., Ont.:—"1. My Durham bull, two and a half years old, is in good condition (stabled in a box stall); when taken out will serve the cows perfectly, yet seems to lack in vigor. Is it caused by too little exercise? Give a good grain ration for a bull for service? Is linseed meal or oil cake good for him? What is the result when fed to working horses?

"2. Can you give information as to the value of commercial fertilizers for corn and peas?

"3. Do you know anything about Tobique plaster, or Tobique Valley plaster, sold by the Tobique Gypsum Co.? Is it good for corn and peas, will it promote the growth of both stalk and cob, and how should it be applied?"

[1. The bull would no doubt have more vigor if allowed more exercise. The run of a large yard or a paddock with strong fence would be good for him. If he is quiet, it might be well to let him run with some in-calf cows for a month when the grass comes, but do not trust too much to his quietness. We can recommend no better ration than bran and chopped oats with clover hay. A small quantity of oil cake—two pounds per day—would tend to improve the thrift of the bull. Oil cake fed to horses in small quantities mixed with other feed has a very beneficial effect upon the digestive tract, placing the horse in a fine condition, with a pliable, glossy skin. It is particularly useful in fitting horses for market, but does not make hard flesh nor tend to increase the spirit of the animal.

2. The term "commercial fertilizer" is too indefinite to indicate a basis of valuation. A fertilizer that is guaranteed to contain soluble nitrogen, phosphoric acid or potash, is valuable to all farm crops in proportion as the soil is defective in these substances and the plants grown require food in these forms. All crops seem to benefit from a manure that supplies phosphates, and treatments with potash always give good results when that element does not predominate in the soil. Nitrogen is most valuable of the three essential manures to all crops except those known as legumes, which includes peas, clover, beans, etc., these having a special power of appropriating nitrogen from the air. In reply to this question we would say that a fertilizer containing the three ingredients referred to will give benficial results when applied to corn, whereas peas will do almost as well with applications of potash and phosphoric acid, with little or no nitrogen.

3. Gypsum or land plaster is practically the same, from whatever source it comes. Its action is chiefly to liberate potash in the soil, so that an application of gypsum has practically the same effect as a dressing of potash. Its use does not, in agricultural practice, seem to grow in favor; in fact, it is less sown now than formerly. For years it was liberally sown on clover in early spring, at the rate of 200 pounds per acre, but it is now looked upon as possessing doubtful value. We would not expect an application of gypsum to corn or peas to be of much service. It would be more likely to help the latter crop.]

POULTRY AND CLYDE STALLION WANTED.

R. E. S., Prince Co., P. E. I.:—"Would you let me know where is the best place to get pure-bred poultry? 2. Would you let me know where a first-class Clydesdale stallion could be got? Are there any in Canada, or would it be better to get one from the Old Country? Who are the leading breeders? Could you give me any idea what the price would be? The FARMER'S ADVOCATE is a first-class farmer's paper. I am very much pleased with it myself."

[See advertisements on pages 176 and 177 in the FARMER'S ADVOCATE of March 15th, 1900.

2. Our advertisers of horses, whose offerings are referred to on pages 169 and 170, March 15 issue, are reliable men, and mean what they say. It would be advisable to communicate with these gentlemen in order to learn what stock they have on hand, and their prices for same.]

TURNIPY FLAVOR IN CHEESE.

W. H. S., Durham Co., Ont.:—"I am requested by the cheese factory here to enquire, through the columns of your magazine, will turnips or turnip-tops fed to cows give cheese made from their milk a turnipy flavor? Will white turnips alone fed to cows cause the cheese to have a turnipy flavor?"

[Either turnips, turnip-tops or white turnips fed will impart a decidedly turnipy flavor to cheese or butter made from milk from cows eating these foods. So great have been the losses from this cause in many sections of Ontario, many large factories have made it a rule to refuse milk from herds where turnips are being fed. In these sections the dairy farmers are ceasing to grow turnips, planting mangels, sugar beets and corn instead.]

DIGGING A WELL IN QUICKSAND.

J. C., Dundas Co., Ont.:—"I would ask a brother farmer to help me out of a difficulty. I have to dig a well for stock this coming summer in sand that runs in while the digging is in progress. So bad does the sand run in, I cannot lower a curb in the ordinary way. Besides digging a new well, I want to lower a present 30-feet well down about 8 feet, and will be glad if some reader of the FARMER'S ADVOCATE will tell how to overcome my difficulty."

[Here is an opportunity to render really valuable service, not only to J. C., but to many others similarly situated.]

FARMING WITHOUT THRESHING.

S. M., Simcoe Co., Ont.:—"Could a stock farm be made profitable without the aid of a threshing machine, other than the flail to top-thresh oats for seed?"

[That would depend upon several contingencies. It may possibly be done if you can provide a substitute for straw for bedding for the stock in winter, such as sawdust or moss litter; if you store hay, well-matured corn, ensilage, and roots, and use a straw cutter to cut the oat sheaves to mix with ensilage and pulped roots, though this last is not necessary where there is good ensilage and hay, and you might use your oat straw for bedding if it is threshed cleanly enough to prevent waste of grain, which is not likely to be the case. If you have a good market for oat straw, and can buy bran reasonably, it might be, and doubtless would be, economy to sell the oat straw and buy bran, which is one of the best and safest stock foods.]

PREVENTING MOLD IN MILK HOUSE.

A. H. C., Kelowna, B. C.:—"Can you tell me how to apply formalin to walls (wooden) of a milk house to prevent mold forming, and if it will do this?"

[A solution of 2 per cent. formalin will prevent mold if sprayed upon the walls or put on with a brush same as whitewash. Common whitewash is also very good. Another good solution is 1 ounce bluestone to a gallon of water, either sprayed or put on with a brush. C. A. MURRAY,
Provincial Dairy Superintendent.]

MARKETS.

FARM GOSSIP.

Lanark Co., Ont.

Winter is over once more, the snow nearly all gone, and we can see the bare fields again. Although March was about as wintry a month as any, it ended very fine, and we are hoping we shall not be getting the tail end of winter in April or May.

Sugarmaking is the order of the day with most farmers in this district now. The indications are that there will not be much sap this year. Whether it is owing to the season, or the damage done to trees by the caterpillars the last couple of summers, is not known.

Stock of all kinds have come through the winter looking pretty well, and the farmers here have high hopes of making some profit out of their cows this season.

Our cheese factory started operations for the season on April 4th. Butter was high, and was quite a luxury in this section during the winter months, up to 30 cents, but is getting back to old figures again.

Good milk cows bring $35 to $40. Beef and pork are also a good price, and farmers generally are feeling that times are not so hard.

Wages have gone up some, and farm help is rather hard to get. I presume there are different reasons for this. The boom in the lumber and mining industries, the war in South Africa, and emigration to the Northwest, all have something to do with it.

We are considerably interested in the discussions on road-making, and hope that the time is not far distant when the amount of money and labor spent on our roads will give a better showing than it does at present.

A New Co-operative Binder Twine Factory.

On March the 24th a public meeting was held in the town of Walkerton, Ont., for the purpose of taking into consideration the advisability of the manufacture of binder twine upon the co-operative principle. The meeting was largely attended by the representative farmers of the district surrounding Walkerton. Addresses were made by several of the farmers who were present, in favor of the project, and also by a Mr. Higgins from Montreal, who was also in favor of the scheme, and in support of it was willing to take $10,000 stock. The meeting was unanimously in favor of the project. The factory projected is to be a building 50 by 200 feet and 16 feet in height, for the manufacture of the twine, and an addition 50 by 75 feet, for boiler and engine room and for storage of the product and raw material. The buildings are to be built of brick and in a first-class manner, and the machinery the best that can be procured, and to be a three to five tons a day plant, and is expected to be in operation in time that twine may be in the market for the coming harvest. Stock books have been opened and are being rapidly filled. It is proposed to raise $60,000 in shares of $10 each. Jas. Tolton was appointed Provisional Secretary-Treasurer, and Messrs. Wm. Rowand, Alex Rae, Mal. McNevin, Adam Sugmiller, Jacob Waechter, Jno. McLean and Geo. B. Lamont were appointed a Board of Provisional Directors.

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

	Extreme prices now.	Top Prices Two weeks ago.	1899	1898
Beef cattle.				
1500 lbs. up	$4 90 to 5 80	$5 70	$5 80	$5 50
1350 to 1500 lbs	4 65 to 5 75	5 50	5 75	5 40
1200 to 1350 lbs	4 30 to 5 60	5 60	5 75	5 25
1050 to 1200 lbs	4 10 to 5 40	5 45	5 50	5 25
900 to 1050 lbs	4 00 to 5 20	4 90	5 35	5 00
Hogs.				
Mixed	5 15 to 5 60	5 20	3 92	4 05
Heavy	5 10 to 5 65	5 25	3 95	4 10
Light	5 10 to 5 52	5 15	3 87	4 02
Pigs	4 00 to 5 30	4 85	3 75	4 00
Sheep.				
Natives	3 50 to 6 30	6 00	5 05	4 90
Lambs	5 00 to 7 40	7 15	6 00	6 00
Colorado lambs	7 10 to 7 50	7 25	6 00	...

The cattle market is now in a little better position. The news of the embargo against South American live stock was received with considerable interest.

A well-known authority says: "The cattle situation is an exceptionally good one as we view it at present. There are but few good cattle coming, and the corn advance is hastening in the short-fed cattle held in small lots. There are a good many big lots of cattle being held in all parts of the country, but there is a big demand, and we believe the outlook is good."

"Hogs are selling the highest since 1894, and the statistical situation seems strong.

Eastern hogmen seem to think hogs may sell up to $6. That's always the way. When prices are going up lots of people figure there will be no top. When it goes the other way they can see nothing but still lower prices ahead.

The horse market is good. Prices have ruled firm, but not higher. Choice farm chunks, weighing 1,200 to 1,400 pounds, have sold steady, at $65 to $105; export and Boston chunks, $80 to $130; drafters, $125 to $260; expressers, $90 to $150; drivers, $75 to $500; saddlers, $75 to $200; unbroken range horses, $15 to $70; broken range horses, $60 to $150; plugs and scrubs, $15 to $55.

A report from the sheep section of Texas says: Sheepmen here this week report that shearing has commenced, and say they never saw better prospects. The lambing outlook is especially good; the weed crop has been fine, and the ewes are in fine condition, full of milk, insuring a large per cent. of lambs, and they will be very thrifty.

Nineteen professional sheep-shearers have begun shearing 40,000 sheep at New Brighton, Minn. The task will keep them busy for over a month. The men use specially-designed power instruments, and they will each draw from $7 to $10 per day.

Interest in fine stock matters has never been greater than it is at present. There is no boom at that, and it will be better if there is none.

Toronto Markets.

The run of cattle at the Western Cattle Market was not large after the usual glut for the Eastern trade. Drovers report a very poor return on account of the large number offered. Prices were weaker on export and butcher cattle. We have a larger number of dealers from outside points who now regularly attend this market for butcher cattle than last year. Messrs. Stewart, Murray, Bissell, and Ross, all of Belleville and Brockville, were on the market. Mr. McIntosh, of Quebec, shipped one carload of cattle. One three-year-old steer, bred by Mr. John Hawkins, Exeter, Ont., weighed 2,000 lbs. live weight, one of the finest beasts seen on this market for some time, which realized $5.10 per cwt.

Export Cattle.—Extra quality of export cattle always fetch top price. Two carloads of choice export cattle, averaging 1,460 lbs., were purchased at $5.25 per cwt., the top price for the day, shipped by Mr. W. Harris to St. John's, Newfoundland. Our export dealers do not care to venture too far in buying export cattle, for the reason that space on the steamships is scarce, high, and very uncertain. We have three carloads of cattle waiting shipment on this market. Mr. J. Scott, of Listowel, sold 23 exporters, 1,150 lbs. average, at $4.40 per cwt. Mr. W. H. Dean bought 5 loads of export cattle at $4.95 per cwt. Mr. D. O'Leary sold one load of export cattle, 1,300 lbs. average, at $5.00 per cwt. Choice picked lots of export cattle were held firm, at $4.70 to $4.90 per cwt.

Butchers' Cattle.—Choice loads of butchers' cattle, weighing from 1,100 lbs. upwards, sold at $4.35 per cwt. to $4.50. Good butchers' cattle equal in quality to export, but not so heavy, sold at $4.12½ to $4.25 per cwt.

Bulls.—Only a few good bulls on offer, at from $2.75 to $3.00 per cwt. A few choice feeding bulls sold for $3.40 per cwt.

Feeders.—Choice, well-bred steers are wanted; very few on offer, and held firm, at $4.00 to $4.15 per cwt. Light feeders—that is, animals weighing from 800 lbs. to 1,000 lbs. average—are wanted, at $3.60 to $3.80 per cwt.

Stockers.—There is still a good demand for yearling stockers, at from $3.25 to $3.60. Heifers, black and white, weighing 600 lbs., sold at $2.50 to $3.00 per cwt.

Sheep.—The market about steady; prices a little firmer, at from $3.25 to $4.00 for ewes. Butchers' sheep sold at from $3.00 to $4.00 per head.

Lambs.—Prices firm, at from $4.50 to $6.12½ for spring lambs. Picked ewes and wethers sold at $5.75 to $6.12½ per cwt.

Calves.—In very poor supply. Good veals wanted, and will command good prices, at from $5.00 to $8.00 per head.

Milk Cows.—Mr. J. Armstrong bought 5 milch cows, at from $25.00 to $35.00 per head. The offerings were of a very moderate quality, at from $25.00 to $45.00 for choice. From a recent return it appears that the total number of milk cows in Great Britain for the year 1899 was 2,671,260, showing an increase of 84,070 over the previous year. Of this total number of cows, 107,774 are in the County of Cheshire, the very home of the cheesemaking industry.

Hogs.—Still higher prices are looked for in hogs, with reports from all districts of great scarcity of the right sort. As we foretold last autumn, farmers were neglecting this portion of their business, and now that prices are booming they are all short. Not that we are in receipt of a less number than heretofore, but because no increased supply is on hand to supply the increased demand. The recent hardening of the market has carried hogs over $6, with prospects still good. Our home and foreign trade in pork products is very good, and packers are obliged to pay more than they consider the live animals worth, but the drovers report that there are now no hogs ready to market anywhere in the northern districts of Ontario. But fairly large deliveries kept the market steady, at $6 25 per cwt. for choice, not less than 160 lbs. and not over 200 lbs. To-day a slight fall of 25c. per cwt. took place in light hogs. Packers will not pay top price for undesirable light weights, of which too many are coming forward. Selects, $6.25; thick fat, $5.75; and light fats, under 160 lbs., are 25c. lower, $5.50 per cwt. Unculled car lots are quoted at $6.10 to $6.20 per cwt.; but this is a pure gamble on the part of the drovers.

Grain Market.—Receipts of farm produce at the St. Lawrence Market were light.

Wheat.—One load of fall wheat sold at 71½c. per bushel; red, 69c.; goose, 70c.

Corn.—There is a firm feeling that corn is going up to 50c. per bushel, and Canadian corn is to-day offered at 43c. to 44c. on track. The consumption in Canada has overtaken the supply, and a shortage is reported. Stocks in farmers' hands are very small. There is no doubt that the consumption of corn for feeding and other purposes is greater at the present time than at any former period.

Poultry.—We have received the returns from our export poultry of last December, and they far exceed expectations, with a demand for a constant supply of the same quality; but this cannot be filled. Turkeys are in great demand, and compare on the Old Country market with the best Italian, and held at the same price. To-day on our market turkeys are quoted at 15c. per lb.; supply limited, demand good. Mr. W. Harris culled 200 turkeys last December, and to-day sold them at an average of $1.60 per head, or at 15c. per lb. Farmers should be encouraged by these reports to pay a little more attention to this branch of poultry raising.

Barley.—Unchanged, at from 45c. to 46c. per bushel.

Oats.—Easier; 100 bushels sold at 32½c. per bushel.

Hay.—The deliveries are now scarce, owing to bad roads. Prices a little easier, at from $10.50 to $12 00 per ton.

Straw.—Price steady, at from $8.00 to $9.00 per ton.

Seeds.—A very steady market exists for seeds, with prices as follows: Red clover, per bushel, $5.75; alsike, per bushel, $7.00; white clover, per bushel, $8.00; timothy, per bushel, $1.25.

Dressed Hogs.—Market firm, and prices quoted steady, at $7.30 to $7.50 per cwt. Prospects good for a further rise.

HORSE MARKET.

The sales at Messrs. Grand's Repository on Adelaide street, Toronto, are well attended by many well-known horsemen from distant towns. Mr. R. Dawson Harling is commissioned to purchase, or to consign direct, any number of sound, serviceable horses, fit for the Manchester trade. They must be upstanding, 17 hands high; light leg, active vanners, and sound. Further particulars can be obtained by application to Mr. Harling, 26 Wellington street, Toronto. The horse trade at the Repository is more active than at any time for years past. The orders have carried the market above the ordinary prices. The near approach of the spring driving season has stimulated the demand from liverymen and private owners, and prices ruled from $50 to $120 for all classes of drivers. Heavy draft horses were in good demand. Mr. Sheridan paid the highest price for horses this week for one pair. A good, heavy Clydesdale matched team fetched $350, a record for this market. They weighed 2,300 lbs. the pair.

The Mutiny of the "Helen Gray."

BY GEORGE MANVILLE FENN.

(Continued from page 201.)

I gave the Malay another snatch toward me, and stood gazing out to sea peering through the darkness.

"No," I said aloud, "unless your eyes are sharper than mine, that's no light, only a star low down."

"Eh? What?" said the captain.

"That's only a star yonder, sir?" I said. "Not a light."

"Light, no. Star. Keep a sharp look out."

He passed on round by the fore part of the ship and went below.

"You were fast asleep, my lad," I said to the Malay in a low voice, but he made no reply, only drew a long, heavy breath.

"If I had not come round, the skipper would have caught you, and do you know what that would have meant!"

There was another long-drawn sigh, and then in quite a whisper he said the one word.

"Kick."

"Ah, you understand?"

Another sigh, and then the one word, "Yes."

"Try and keep awake, my lad. It's hard sometimes, but you've got to do it. Where's your sirih?"

"Hah?" he ejaculated, as he fumbled quickly in his pocket, and took out a little bag and a box. "Have? Better—'bacco."

"No, no," I said, "I'll keep to this," and I stood watching him in the darkness as he took a little narrow leaf from his pouch, and a scrap of broken betel nut. Then he replaced his pouch, took the brass box from where he had laid it on the top of the bulwark, opened it, and, with one dark finger, took out a little white paste formed of burnt coral lime, spread it over the leaf, laid the piece of nut thereon, and rolled it in the leaf before transferring it to his mouth.

"Will that keep you awake?"

"Yes. Wake," he replied, softly.

"If I come and catch you asleep again I'll pitch you overboard. Understand?"

"Yes, understand. Pitch overboard. No, no, no."

He laid his hands together on my breast as he repeated the negative, laughed softly, and I could see his lurid-looking eyes gleaming in the starlight as I nodded to him and turned away.

CHAPTER III.

We touched at Colombo, but I had no opportunity to go ashore, and as Joe Stacey and I were chatting in the shade cast by one of the sails, I gave vent to my disappointment.

"Yah," he said, as he hacked off a fresh quid from a black cake of tobacco, "you don't know what you're talking about; safer aboard here. Look at that bairn of the skipper's, how she do enjoy herself to be sure."

I was already watching the little bright-eyed thing who seemed to set the heat at defiance, and was playing about with her ball, tossing it here and there, and then chasing it with as much eagerness as a kitten would have shown.

The captain was sitting under the awning we had rigged up over the stern, with a cigar in his mouth, but it was out, and he was evidently asleep; while Mrs. Barton was on the windward side, in one of those long low Chinese arm-chairs, holding a book before her, but gazing straight out to see. The six Malays were squatted together forward, after their fashion, sitting as you may say on their heels, motionless as so many bronze statues, but every now and then as I looked at them I could see their eyes gleam.

"What are they looking at?" I said to myself, but I was not long in doubt, for their attention was evidently fixed upon the child as it tripped merrily here and there after the ball.

"Lor, how hot it is," said Joe, "I think I shall go down below."

"What for? To be baked! You can breathe here: you can't down in that hole."

"Is you hot?" said a merry little silvery voice close by me, and I turned, smiling for the first time, I think, since I had been on board, to see that the child had tripped down from the poop-deck, come forward, and was looking enquiringly at me.

"Yes, my darling, very hot; aren't you?"

"I don't know; I've lost my ball."

"Have you. Why, where has it gone?"

"Will you come and get it for me?"

"Of course I will," I said, rising, and the little thing put her tiny white hand in my hard tarry palm, and sent quite a thrill of pleasure through me.

It was very stupid, of course, for a man; but that child's little voice, her bright sunny face, and her trustful way of speaking, and putting her hand in mine, made my eyes grow quite dim, and set me thinking about home and happier days long passed away.

"I was frowing it up ever so high," she said as she tripped along by me, "and I frowed it, and frowed it, till it fell on that sail, and then it rolled down over there, and I couldn't see it any more."

"Why, dear, dear, me," I said, trying to be playful, though, I suppose, it must have sat badly on me, "do you know, little one, you frowed it, and frowed it, and it rolled off the sail overboard."

"Did it?" she said.

"Yes, and I shouldn't wonder if some great fish has swallowed it all up."

"Oh!"

The bright little sunny face changed, the clear-skinned brow went all in wrinkles, there were delicious little puckerings about the blue-grey eyes, and the corners of the rosy little lips began to come down.

"No, no, no," I said quickly, "don't cry, and I'll try if I can't make you another ball—better and bigger."

The sun came out in her sweet little face again as I shed hope into her sorrowful heart, the puckers and lines faded, the rosy lips went back to their pretty curves, and she clung to my hand.

"Bigger—ever so much bigger?" she cried.

"Yes, ever so much bigger."

"Oh, oh, I do love you," she cried, "though you are so black and dirty."

I winced a little.

"Dirty! why, it's only tar."

"I got some on my frock and mamma was so cross. When will you make the ball?"

"As soon as ever I can get some oakum."

"'Sh! don't talk so loud, papa's asleep and so is mamma."

"Oh, we can make a new ball without waking mamma," I said. "Let me see: I must get some oakum. Will you give me a kiss for making it?"

"Yes," she said, and she reached up her hands and pouted her pretty little rosebud of a mouth as I lifted her from the deck and then put her hastily down, for a quick voice behind me exclaimed:

"Lyddy, come here directly; I told you that you were no to do that."

I knew without looking that it was the captain's lady, and that she had started from her chair and was standing close to the rail, looking down on where we stood.

The child darted to the steps and ran up, while as I stood there frowning with my face averted, I caught a few words about "common sailor," and "I forbid you to do that. How dare you be such a naughty child."

"As to contaminate yourself by speaking to a common sailor," I muttered. "What a fool I was to forget myself, madam, and not recollect that I am a different kind of being to you."

I went forward bitterly, and stood gazing at the glittering sea, with the sun beating down on my head, chewing the cud of bitterness the while, till that child's little innocent face seemed to be looking up again in mine; and as I seemed to see it my own grew less hard, her smile must have been reflected therein, and I went and hunted out the boatswain, who was below asleep.

"What?" he growled; "oakum? Ho! If you want to twist it into a rope to hang yourself, I'll give you some. No, I won't; be off. Here, stop, whatcher want it for?"

"To make a ball for the skipper's little one," I said, sulkily.

"Why didn't you say so before?" he cried, hastily. "But she's got one."

"Gone overboard!"

"Oh. There: you'll find some forrard. Go and help yourself, my lad."

I took a couple of good handfuls of the soft tow and some sail-maker's thread, went back on deck and seated myself in the shade, to begin rolling up the hemp as smoothly and closely as I could, but not without breaking out bitterly now and then, and in a petty spirit saying that I daresay it would be thrown back at me by the proud mother, when just as I had pretty well shaped the ball, a dark shadow was cast on the deck just in front.

I looked up sharply, and saw that Ismael was watching my busy fingers.

He smiled, and his half-closed eyes gleamed as in his quiet, subdued way he pointed at the ball.

"For missee?" he said, softly.

"Eh? Yes," I said, "for the child."

He stood watching me, and I worked away, binding the tow hard with sail-maker's thread, and the ball began to grow more and more into shape.

"You love little missee?"

I looked up again sharply in the smooth brown face, with its coarse black hair and gleaming eyes.

"Of course. Anyone would."

He nodded his head slowly two or three times, and stood calmly watching my work, till a wild shriek rang out from away aft, accompanied by a splash, and as I sprang to my feet I was in time to see that the captain had leaped from his chair and was holding his wife, who with arms extended, was frantically struggling with him and straining over the side.

I guessed what had happened, and ran aft as the captain roared out his orders for a boat to be lowered down; but I was too much excited and confused as I dashed up the steps, right on past the struggling pair, and sprang upon the bulwark, to see a little white face surrounded by golden hair, floating far astern.

If ever man felt a horrible sensation of fear, I did at that moment when the water thundered in my ears, and I seemed to be going down and down right into the jaws of some huge shark. We had seen the long, loathsome-looking wretches gliding about the ship over and over again during the voyage —sometimes so deep down below the keel that they looked shadowy and spectral, at other times so close to the surface that the black fin rose from the water and made a track that grew wider and wider till it died away.

A chorus of shouts and cries made me turn my head once, as I rose with my vigorous stroke, and felt half startled to see how far the vessel already was away; but it was only a momentary glance, and I swam on hard right in the rippled, eddying water in the wake of the vessel. At every stroke I raised up my head as high as I could reach, and strained my eyes to catch sight of the child, but as I strove again and again, my heart sank with despair, for I could see nothing but the glistening, sun-glazed surface.

"Gone!" I cried with a hoarse gasp and a strong sensation of something suffocating at my breast, but even as the word left my lips and I swept the surface with my eyes, I caught sight of something white rising from the water just where the swell was highest.

The speck of white I had seen was full forty yards away to my right, and as I rapidly decreased the distance a cold chill of horror shot through me and paralyzed my efforts for the moment.

Something cold and yielding touched my hand, making me shrink away as a strange stinging sensation shot up my wrist and arm.

For the moment I felt sure that I had been seized by some keen-toothed being, but as I caught sight of a great opal disk surrounded by glistening iridescent filaments, I strove to recover my lost way, realizing as I did that it was only one of the great jelly-fish that abound in some seas.

"It must have been about here," I thought, as I rose up in the water and searched around, but I could see nothing—nothing but the clear water, and my heart sank lower. Then a yard or so away on my right I caught sight of the object of my search slowly rising to the surface, and the next instant I had clutched her, raised her little head above the water, and was swimming strongly and well.

But a feeling of horror began to attack me again. There was the ship with all sail still set gliding slowly and surely away, seeming to my weary eyes further than she really was, while the boat that had left her side, and whose oars at every dip sent the spray flashing in the glowing sunshine—would she reach us before I grew weak and sank?

I used to swim well as a boy, but I never felt more helpless in the water than I did that day after I had caught hold of little Lyddy. My nerve began to go at once, and I exerted myself to my utmost to help to lessen the distance between myself and the boat, feeling sure as I did that I could never hold out till she reached us.

Then as the oars flashed she was eighty—fifty yards from me and it was all over. I could swim no more, the water was bubbling at my lips, and a dizzy sensation made all seem dim before my eyes, till I heard a yell rise in chorus from the boat.

That sent a shock through me, and I made one more feeble stroke or two, and then floated motionless with my eyes fixed upon the object of my greatest dread—the back fin of a shark gliding slowly toward me at about the same distance as the boat, whose crew strained at their oars so as to reach us first.

What followed seemed like part of some horrible dream, in which, perfectly helpless myself, I waited for the end, and I can recall smiling grimly as I felt that I was between the shark and the child.

Closer boat—closer shark, gliding deliberately toward me with nothing but that triangular back fin cutting the water, and then as I set my teeth and glared wildly at the coming peril, I had a dim vision of the captain raising himself high up on the thwart, and then bending low as he delivered a fierce thrust with the boat-hook down at the shark. The next instant there was a tremendous swirl, the monster rose two or three feet out of the water in its agony, and struck the boat a blow with its tale as I was dragged over the side to lie motionless in the stern, hardly realizing that I was still alive.

"Take a nip of this, my lad," said a rough voice, close to me, as I was lifted on deck, and the first mate went down on one knee and held a little cup to my lips. "Better?"

"Better, sir. Oh, yes. I'm all right," I said, huskily, "only a bit played out."

"Played, eh?" he said. "There, you go and get into some dry things. Can't afford for you to get feverish and on the sick list. Here, take my arm."

"Oh no, sir," I said, "I'm not so weak as that. There, I can get on—but—the little girl."

"Coming to fast," said a familiar voice.

"Here, Roberts, the captain wants you in the cabin."

I felt uncomfortable, for I did not want to be thanked, but I walked up to the door, knocked, and a voice that was not the captain's said,

"Come in."

I went in, and as I did so the light of the setting sun showed me the captain in the inner cabin, bending over a cot in which I supposed little Lyddy would be lying, but I had hardly time to realize this, for my hand was seized and held tightly between two that were soft and warm—and a choking, passionate voice exclaimed—

"God bless you for that! You saved my poor darling's life."

And as I stood half shrinking away, the woman who seemed to have treated me with such scorn and contempt that morning pressed her warm lips upon my hand.

"Yes, God bless you for what you have done, my lad," said the captain, coming to my side. "Give me time and I will try and think out what I ought to do."

CHAPTER IV.

I could not sleep much that night for thinking of the events of the past day.

"It's a curious world this," I said to myself rather bitterly as I lay there in the stifling cabin, and at last, unable to bear the heat, I crept quietly up on deck and looked about me.

All was still as death; the ship was gliding slowly on with her lights burning, and the glow rising from the binnacle just showing the face of the man at the wheel.

"Where shall I go?" I thought to myself. The idea came directly, and lightly, and without a sound, I climbed up to where the long boat rested between two of the masts in its chocks.

The next minute I had settled myself down to have a good restful sleep in the cool night air, when I heard a slight whisper, which made me raise my head and look over the side of the boat.

I could see nothing for the darkness, and was about to settle down again when a shadow seemed to pass over the cleanly-scoured deck, and then another, to stop just below where I was, and one shadow whispered softly to the other shadow.

"Why, they are the Malays," I said to myself. "What's up?"

I strained my sense of hearing, as one, whom I knew to be Ismael, said a few words rapidly to the others, and these were evidently objected to by Dullah, and received with a low murmur as if of dissent. But Ismael whispered again in a more authoritative tone, and the men separated as they had come till all had gone, and as far as I could make out two went forward to join the watch and the others went below.

What does this mean? I asked myself, wishing the while that I had been able to understand the Malay tongue, and I lay there in the boat listening for some time, but they did not come again, and I dropped off fast asleep, to be awakened by the sun shining down hotly on my face.

In due course we put in at Penang, and then sailed on south, first skirting along by Sumatra, and then contrary winds caused us to sail east for a time, till we were well in sight of the opposite coast by the low, jungle-covered shore.

We made very little way, for it fell almost calm, and the heat was tremendous. For two days we drifted nearer and nearer to the coast, till first of all the long lines of mangroves of a dull green could be seen lining what looked like the entrances to creeks and muddy rivers; beyond them palms with their beautiful tufted heads stood up tall and columnar, and beyond them again a dim line of great forest trees in the distance, with here and there, but hardly seen, a round-topped hill. Then all dim bluish distance, and the glaring sun over all.

"Well," said Joe to me on the hottest of these days, "we shan't want no storms, for there won't be a bit of pitch left in any of the seams. Look at that, mate."

He pointed to a row of black beads which had oozed out from between two of the planks.

"Have you been down here before, Joe?"

"Me? Lots o' times."

"But is it often calm like this?"

"Oh, I don't know, my lad. Sometimes, and sometimes there's fair breezes. But lor' bless you, it's the same every where. Weather's about the untrustworthiest thing I know."

Joe went on talking, and I listened, but hardly heard a word he said; for the rest of that day glided by in a drowsy, dreamy way which made me think that I did not wonder people in hot countries did little work, and let the time go by without displaying any energy; and that night I felt almost disappointed because it was my watch below, for by comparison it seemed cool, and I thought how pleasant it would be to lean on the rail and gaze at the black shore yonder beyond the oily sea; and as I scented the moist air, listen to the faintly-heard sounds of wild nature as it woke up in the jungle.

But a sailor has to do as he is bid, and we went down into the stifling forcastle, where I lay talking to Joe for a time, making up my mind that I should not sleep a wink, but dropping off into a heavy, dreamless state, from which, after how long I did not know, I suddenly started, for in a hurried, stifled way I heard, or dreamed I heard, someone saying—

"No! No! Don't, pray don't! Man—man! I've a wife and child. Don't kill me. Help!"

Then all was as still as death. The sweat stood out on my face in great drops, which trickled together and ran down as I lay there resting on my left elbow. My head was all stupid and confused as one is when wakened out of a heavy sleep, and for long enough I could not tell whether I was awake or still asleep. But all was so still that I drew a heavy breath full of relief.

"Dreaming!" I said to myself. Then, "Awake," I muttered through my teeth, for there came now the sound of scuffling, and a curious noise as if someone was trying to call out with a hand held over his mouth. Then there was a dull splash, and pat, pat, pat, pat, naked feet running along the deck over my head.

Two thoughts flashed through my brain in the darkness, as I rolled out of my bunk: "If I lie here I may be safe—if I go up on deck I may get a knife in me, and be pitched overboard."

But come what might I could not stop.

"Here, Joe, quick, rouse up."

He was not in his bunk, and with a horrible thought that we must have been attacked in the darkness by one of the Malay prahus which lurked in the creeks of this shore, I made for the hatch and climbed out, to drop down on the deck directly and lie panting with excitement, as once more I heard the sound of scuffling, a smothered cry, a fall, and then the sound of something being dragged along the deck, and a plunge into the sea.

My hand went involuntarily to my pocket for my knife. It was not there, and as I vainly tried to think of some weapon with which to arm myself, I heard the pat, pat, pat of steps again on the deck, and shrank away round the foremast, crouching low down, listening, and trying to make out what was going on.

I was not kept in suspense, for there was a peculiar sound which puzzled me, but not for long. I made out directly that the hatch had been shut down, and the clink clink of chain told me that the enemy was dragging and piling up on it a quantity of cable to keep it fast if those below tried to get out.

I strained my eyes in all directions trying to make out where the prahu that had boarded us lay, but tried in vain, and though I listened I could only hear hurried breathing and whispering in two places—one by the forecastle hatch, and the other right aft.

A hissing whisper close at hand made me shrink down, but I could see nothing, and I felt now how it was that it was so dark, for we were in a heavy mist, one that must have floated off from the low-lying shore.

Then like a flash I recollected about lying in the boat and the six Malay sailors coming together to whisper.

I saw it all now. These men, in resentment of their treatment, which they had borne so humbly and patiently, had taken advantage of our being so close in to their own land, and were in mutiny to murder all on board and seize the ship.

[TO BE CONTINUED.]

THE QUIET HOUR.

God With Us.

"For the glory and the passion of this midnight
I praise Thy name, I give Thee thanks, O Christ!
Thou that hast neither failed me nor forsaken
Through these hard hours with victory overpriced;
Now that I, too, of Thy passion have partaken,
For the world's sake—called—elected—sacrificed!

Thou wast alone through Thy redemption vigil,
Thy friends had fled;
The angel at the Garden from Thee parted,
And solitude instead
More than the scourge, or Cross, O Tender-hearted!
Under the crown of thorns bowed down Thy head.

But I, amid the torture and the taunting,
I have had Thee!
Thy hand was holding my hand fast and faster,
Thy voice was close to me;
And glorious eyes said: '*Follow Me, thy Master,*
Smile as I smile thy faithfulness to see!'"

A few days ago a little book was put into my hands, a book which pictures very vividly the darkness and desolation of a Christless world.

The writer tells of a vision which he saw of a great city, where all the heads of Christendom had gathered together to publicly proclaim their disbelief in Christ. It was said that His body had been found in the sepulchre, which was indisputable proof that He had never risen. This great company of men and women openly professed that they had been guilty of idolatry in paying Him Divine honors. The writer is not convinced, but boldly declares that no amount of outward proof could shake his confidence and trust in One he knows so well. It can only be a delusion of Satan to deceive the unwary. Then the dream changes. He sees the sick and the sorrowful deprived of their one consolation and hope. He assures them that God cares for them and has numbered the very hairs of their head. They turn away, sadly saying that Jesus, who said so, is dead, and how can they tell whether the great and awful God cares for them or not. A poor woman who had been rescued from shame and misery, gaining new hope from hearing that the Son of God was ready to forgive and help her, falls back again into hopeless degradation when the wise men of this world assure her that He is dead and unable to hear her cry. Only the mothers still cling to a remnant of their faith in the Saviour of the world. They still treasure as a sacred thing that beautiful picture of purity—the innocent children held to the heart of the sinless Man.

Now that we celebrate once more the great Easter festival, it may make our faith in a living Lord more bright, to glance for a moment at this visionary picture of a dead Christ. Think what it would mean to have no living, loving Saviour to pardon our sins, to help us in the hard struggle against our three great enemies, to be with us when we pass through the dark waters of death, to greet us when we reach the other side.

Those glorious words which have cheered so many mourners—"I am the Resurrection and the Life"—would be utterly meaningless if He were dead. The weary and heavy-laden could not come unto Him for rest. The sheep would be hopelessly lost without the Good Shepherd. The beautiful parables, so full of heavenly teaching, would no longer have Divine authority, if He who gave them to the world failed to fulfil His own promise of rising again. How could we be sure that God loved the world, if this great revelation of His love in His only begotten Son were taken away from us?

But, thank God, this vision is only imaginary. The Lord Jesus is not dead, but liveth. He watches over each one of us with unwearying, tender care. Every little incident of our lives is important in His eyes. As the disciples, struggling with winds and waves in the darkness of night, were under the eye of their Master, so it is now. We are never alone, never forsaken, never helpless. God is with us always, ready to hear our slightest cry for help; "able and willing to do exceedingly abundantly above all that we can ask or think."

We do not worship a dead Christ. He is risen as He said. If the Gospel story ended with the Cross, it would be powerless to enlighten a dark world. If He could not save Himself, it were useless to expect Him to save others. Think of the parting promise: "I am with you alway, even unto the end of the world." Think, too, of the *command* attached to the promise of His presence: "Fear thou not, for I am with thee." The disciples, who did not think their Master's presence was a sufficient protection against the storm, were rebuked for unbelief. Fear is always the outward visible sign of unbelief. To be afraid, proves that we do not believe that God is able and willing to take care of us. To have perfect trust and confidence in an ever-present God, is to be utterly fearless. Abide under the shadow of the Almighty, and then "Thou shalt not be afraid for the terror by night, nor for the arrow that flieth by day; nor for the pestilence that walketh in darkness; nor for the destruction that wasteth at noonday. A thousand shall fall at thy side, and ten thousand at thy right hand; but it shall not come nigh thee."

If your religion is not practical, affecting the everyday events of life, then there is something wrong with it. If you do not trust God in little things, it is hardly likely that you will in great things.

"Then trust Him for to-day
As thine unfailing Friend,
And let Him lead thee all the way,
Who loveth to the end.
And let the morrow rest
In His beloved hand;
His good is better than our best,
As we shall understand,
If, trusting Him who faileth never,
We rest on Him, to-day, forever!"

HOPE.

Resurrection.

Rejoice! O Christendom, rejoice!
Dry every tear, and lift your voice
In songs of praise alone.
Forget the past, and look on high,
There, leads the road from Calvary,
And Christ has reached the throne.
Look down from hence, behold in view,
Enveloped in a morning dew,
The sad and suffering earth!
How great her grief, how large her woe,
When contemplated from below,
Yet now, how small her worth!

Ye happy Christians! tell aloud,
Who, in a golden morning cloud,
Has risen from the grave,
Of mighty strength and glorious fame,
The Captain of the Host, His name,
For whom His life He gave.
Before the host the Captain goes,
And in each contest with His foes,
He every danger dares;
And when, through conflict, rest is won,
The work achieved, and perils done,
His joy the army shares.

Cheer up, ye blessed warrior band!
With Him in danger, heart and hand
Ye have maintained your post.
The warfare ended, think ye now,
When majesty adorns His brow,
He will forget His host?
Ah, no! a shameful captain he,
Who, after strife and victory,
His people should disown.
But follow ye your faithful Lord,
And ye shall share His great reward,
His kingdom and His throne!

—*Tholuck.*

Travelling Notes.

AUSTRALIA.

In these days, when all loyal subjects naturally turn to the great South African war theme, it will surely be of interest to our readers to hear about the brave Australian soldier boys who have sailed from Adelaide to stand shoulder to shoulder with our own dear Canadians, and with them to live or die for Queen and country. Through the kindness and courtesy of influential friends, we were fortunate enough to get tickets for splendid seats on the platform—first in the park, afterwards on the pier. We were next to the Governor of the Colony, Lord Tennyson, and Lady Tennyson, so that we heard all the speeches and saw everything to the utmost advantage. It seems a fitting coincidence that the duty of saying farewell to these brave fellows should devolve upon the son of England's greatest poet of the century—Alfred Tennyson—one whose loyalty to the Throne was proverbial, and whose patriotic verse has done so much to cement the Empire into one grand and glorious WHOLE. Such enthusiasm as was manifested as the soldiers marched through the streets of Adelaide was a stirring sight indeed. Streets, windows and verandas were simply thronged—handkerchiefs waving and cheering deafening. Some of you doubtless saw our own boys depart, so will readily enter into all this; and even those who have not witnessed a like departure will understand how the pulses leap and the eyes fill in seeing the brave fellows go forth with surely God and right on their side.

In addressing the contingent, His Excellency said: "Men of the Mounted Contingent of South Australia, in the name of our beloved Queen, in the name of our United Empire, in the name of the Old Country, in the name of South Australia, I bid you a heartfelt godspeed, and I wish you a safe, speedy, happy, and glorious return. (Cheers.) God bless you and protect you now and always, my brave fellows."

All were evidently deeply impressed with these loyal and encouraging words.

Colonel Gordon's reply was as follows: "Your Excellency, ladies and gentlemen, I thank you for the kind references you have made to us. We hope to do our duty and return to give a good report of ourselves."

The scene at the pier was enough to stir even the most stolid soul, and the people out here are anything but stolid. A very curious sight was in the embarkation of the horses and mules. They required very different treatment. The horses were led or pulled, and in some cases almost carried, up a gangway from the wharf. They naturally are somewhat frightened at this strange sort of journeying. But, oh, those mules! We all know the old phrase, "As obstinate as a mule," and when fright is added to the proverbial obstinacy, you may well imagine there is no end of trouble with them. They were coaxed and pulled and twisted into boxes—a powerful steam winch was set to work—mule and cage swiftly hoisted into the air and lowered to the lower deck of the steamer, and all this with the thermometer at 106° in the shade! This scene had its interest and humor, of course, but the sadness of the good-byes seemed to overshadow all else; and while we cheered ourselves hoarse and tried to encourage the Australian soldier boys, we *could not* keep down that obtrusive big lump which will come into the throat at these times, and could not, too, repress a (perhaps selfish) thrill of thankfulness that none belonging especially to us were going.

All aboard! Slowly the great ship glides away and the brave Second Contingent from South Australia is gone. God bless them and God comfort those who love them and will wait—ah, with what full and anxious hearts!—for their return.

Recipes.

In coloring candy, jelly, blanc-mange, and other edibles, use vegetable colorings when possible. Blood beets give a deep red; cranberry juice, a delicate pink; fresh spinach, after standing a day in a tablespoonful of alcohol, a delicate green; the yolk of an egg or a grated carrot, yellow.

A delicious southern way of cooking oysters. Cut two thin slices of breakfast bacon into narrow strips, and the strips into pieces about an inch long. Place them in a frying pan and cook to a crisp brown, then turn in a pint of oysters freed from liquor, cook about five minutes, or perhaps six, stirring gently. Serve on a hot platter garnished with toasted crackers. The oysters must be put to drain about half an hour before needed or there will be too much liquor.

MACARONI (WITH BOILED FOWL).

Break in inch pieces, cook in boiling water twenty minutes, or till tender. Rinse in cold water. Drain, heat again in some of the water the fowl has been boiled in, add butter and a tablespoon of cheese. When nearly dry turn out and serve.

POTATO PUFF.

Beat a pint of mashed potatoes and butter the size of an egg (melted) until very light. Add half a cup of cream and two eggs beaten separately. Beat well and pile irregularly in a dish, and bake quickly a nice brown.

FIG PUDDING.

One-quarter pound of cooking figs (chopped fine), ¼ lb. bread crumbs, ¼ lb. brown sugar, ¼ lb. suet, ¼ lb. lemon and citron peel, one nutmeg, and five eggs. Mix thoroughly. Put into a mold and steam four hours.

ORANGE MARMALADE.

One dozen bitter oranges, 8 lbs. best white sugar, 4 quarts water. Cut the peel very fine. Separate the pulp from the seeds, and with the peel soak 36 hours in the water; then boil two hours and add the sugar and continue boiling till the sugar is dissolved and the mixture begins to look thick and clear like jelly. Put into sealers.

Dog Mail Carriers.

Up in Maryland, near the town of Westminster, a novel mail service is in operation. The carrier is a dog, and is believed to be the only one of his kind in the United States that is looked upon as a fixture in the postal service of Uncle Sam. The dog, which is a fine, shaggy fellow of good size, is owned by a man living some distance from the main road, and makes daily connections for his master with the rural free delivery wagon of the postal service. At the same place and hour his dogship is to be found waiting for the mail wagon, safely bearing away to its destination whatever is tossed out to him. The only difficulty is that he always insists on taking something home with him, and when the driver has no mail he endeavors to provide himself with a bunch of old newspapers, which he throws out, wherewith to appease his trusty canine ally.—*Washington Post.*

Practising How to Talk.

There is one great reason for the lack of conversational power, writes Louise Doyle in the *Ladies' Home Journal.* In too many cases the art is never practised inside the home circle. No attempt at pleasant converse is ever made save when visitors are present; the various members of the family may gossip a little, or discuss purely personal affairs, but they make no attempt at entertaining talk. In point of fact, the art of conversation is like a game of battledoor and shuttlecock; one needs the quickness and dexterity of constant practice. In many busy households the only general gathering of the family is at meal-time—a time above all others when worry should be banished, if only for the sake of physical comfort. Yet this is the very time when the mother will complain of domestic worry, the father of business cares, and the daughters of shabby frocks.

All this should be changed; it ought to be a rule in all households that disagreeables are to be banished at meal-time. If complaints must be made, let them come at a proper time, but do not imperil your digestion by eating when your are in an irritated and discontented frame of mind. Pleasant talk, relieved by an occasional laugh, will be more beneficial than pounds of pills. In the household there should not only be an avoidance of unpleasant topics, but an attempt to find agreeable ones. Each member of the family should come to the table prepared to say something pleasant. Any bright little story or merry joke, or any bit of world's news that will loosen the tongues and cause animated talk—how it will increase the brightness of the working day. There need be no profound discussion—it should be just lively touch-and-go talk. And surely the brightening of the home life is worth a little pains.

What was It?

Guess what he had in his pocket:
Marbles and tops and sundry toys
Such as always belong to boys,
A bitter apple, a leathern ball?
Not at all.

What did he have in his pocket?
A bubble pipe and a rusty screw,
A brass watch-key broken in two,
A fishhook in a tangle of string?—
No such thing.

What did he have in his pocket?
Gingerbread crumbs, a whistle he made,
Buttons, a knife with a broken blade,
A nail or two, or a rubber gun?—
No; not one.

What did he have in his pocket?
Before he knew it slyly crept
Under the treasures carefully kept,
And away they all of them quickly stole;—
'Twas a hole.

Not Lost, but Gone Before.

"I wonder what becomes of the frog when he climbs up out of this world and disappears so that we do not see even his shadow: till, plop! he is among us again when we least expect him. Does anybody know where he goes to?"

Thus chattered the grub of a dragon-fly, as he darted about with his companions at the bottom of the pond.

"Who cares what the frog does?" answered one of his friends. "What is it to us?"

"Look out for food for yourself," cried another, "and let other people's business alone."

"But I want to know," said the grub. "I followed a frog just now as he went up, and all at once he came to the edge of the water, then began to disappear and presently he was gone. Did he leave this world, do you think? And what can there be beyond?"

"You idle, talkative fellow," cried another, shooting by as he spoke, "attend to the world you are in, and leave the 'beyond,' if there is a 'beyond,' to those that are there. See what a morsel you have missed with your wonderings." So saying, the saucy speaker seized an insect which was flitting right in front of his friend.

"Ask the frog himself," suggested a minnow, as he darted by.

This advise seemed to be very good, so the grub resolved to take it. Screwing up all his courage, he approached the frog in the meekest manner he could assume, and said—"Respected frog, there is something I want to ask you."

"Ask away," exclaimed the frog, not in a very encouraging tone.

"What is there beyond the world?" inquired the grub, in a trembling voice.

"What world do you mean?" cried the frog.

"This world, of course—our world," answered the grub.

"This pond, you mean," remarked the frog, with a sneer.

"I mean the place we live in, whatever you may choose to call it," cried the grub pertly. "*I* call it the world."

"Do you, sharp little fellow?" rejoined the frog. "Then what is the place you don't live in, the 'beyond' the world, eh?"

"That is just what I want you to tell me," replied the grub.

"Oh, indeed, little one!" exclaimed froggy, rolling his eyes. "Come, I shall tell you then. It is dry land."

"Can one swim about there?" inquired the grub.

"I should think not," chuckled the frog. "Dry land is not water, little fellow. That is just what it is *not*."

"But I want you to tell me what it *is*," persisted the grub.

"Well," said the frog, "if you choose to take a seat on my back, I will carry you up to dry land, and then you can judge for yourself what it is like there. Get on my back and cling to me as well as you can. For if you go gliding off, you will be out of the way when I leave the water."

"The grub gladly obeyed, and the frog, swimming gently upwards reached the rushes by the water's edge.

"Hold fast," cried he, as he clambered up the bank.

"Now then, here we are! What do you think of dry land?" but no one spoke in reply.

"Hello! gone?" he continued, "that's just what I was afraid of. He has floated off my back, stupid fellow."

"But the grub, meanwhile? Ah, so far from having floated off the frog's back through carelessness, he had clung to it with all his might, and the moment came when his face began to issue from the water.

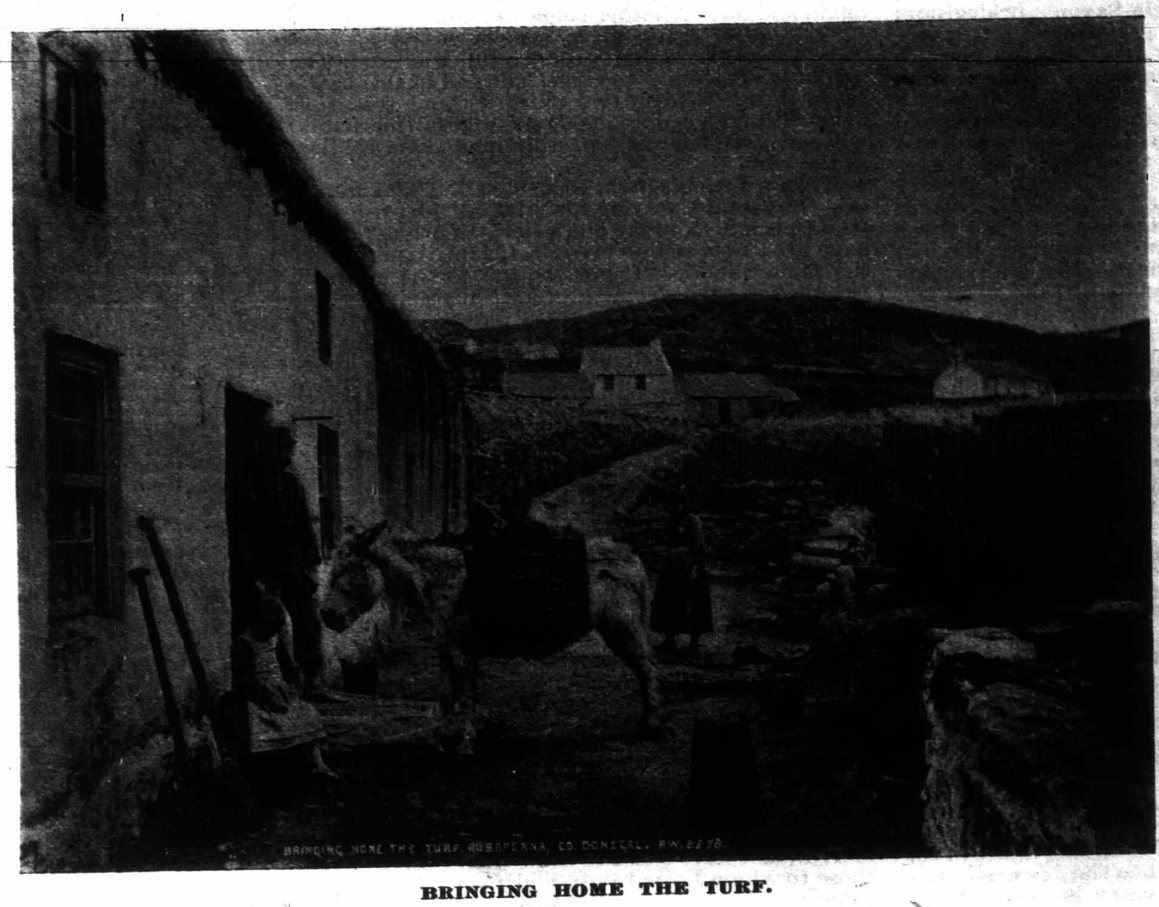
But the same moment sent him reeling from his resting place into the pond, panting and struggling for life. A shock seemed to have struck his frame, a deadly faintness followed, and it was several seconds before he could recover himself.

"Horrible!" cried he. "Beyond this world there is nothing but death. The frog has deceived me. He cannot go *there*, at any rate."

After talking over the mystery and danger with his friends, he suddenly encountered, sitting on a stone at the bottom of the pond, his friend the yellow frog.

"*You* here!" cried the startled grub. "You never left this world at all then, I suppose. How you have deceived me."

"What do you mean?" replied the frog. "Why did you not sit fast as I told you?"



BRINGING HOME THE TURF.

So the grub described his terrible adventure, and then said, "As it is clear that there is nothing beyond this world but death, all your stories of going there yourself must be inventions."

Then the frog told how he had lingered by the pond, in the hope of seeing him, "And at last," continued he, "though I did not see you, I saw a sight which will interest you. Up the stalk of a bulrush I saw one of your race slowly and gradually climbing, till he had left the water behind him. Presently a rent seemed to come in his body, and after many struggles, there emerged from it one of those radiant creatures who float through the air, and dazzle the eyes of all who see them—a glorious dragon-fly! He lifted his damp wings out of the carcase he was forsaking, and they stretched and expanded in the sunshine, till they glistened like fire."

"It is a wonderful story," observed the grub, "and you really think that the glorious creature you describe was once a—"

"Silence," cried the frog: "I am not prepared with definitions. Adieu. The shades of night are falling. I return to my grassy home on dry land. Go to rest, little fellow, and awake in hope."

The frog clambered up the bank, while the grub returned to tell his companions of this new and wonderful hope of another life beyond their world.

(TO BE CONTINUED.)

The Highest Inhabited Spot.

The highest spot inhabited by human beings on this globe is the Buddhist cloister of Hanle, Thibet, where twenty-one monks live at an altitude of 16,000 feet.

Bringing Home the Turf.

Now that our beloved Queen is enjoying a true Irish welcome in beautiful Erin, amongst some of her most loyal subjects, an Irish picture seems peculiarly fitting. This realistic and typical scene has doubtless been witnessed by many who have visited certain parts of Ireland, while to her true-born sons and daughters it will bring a thrill of recognition. We see so few donkeys out here that the present writer almost feels like shaking hands with "Neddy," even in a picture. What a gentle-looking donkey this is, and I dare say he has pretty heavy loads sometimes of that same turf. No one looks in any particular hurry, especially the small girl and the young fellow sitting on the rough wall, whom I suspect is glancing at the colleen a little further off.

Food Fads.

The health and food fads of the day are producing their legitimate result. Over-zeal in their pursuit was to be expected, and it now exists to the extent that medical men have actually found a scientific name for a condition which arises from fear of food. It is not exactly a disease, but its effect speedily becomes harmful if the condition continues. It seems desirable to avoid too much thought over what one eats. If certain general principles of hygienic food are observed, a healthy appetite and a relish for the dishes set before one may be trusted. It does not need any conversion to mental science to discover that if we make up our minds something will disagree with us, it will. This, of course, is not a plea for the pendulum to slip too far the other way, but merely one more caution that in food fads, as in every other development of this investigating age, there is need for sanity and poise.—*N. Y. Evening Post.*

A New American Dish.

When Paul Laurence Dunbar was in England two years ago he was invited to read, before a distinguished company, from his poems at the house of a certain lord. The poet chose the poem, "When the Co'n Pone's Hot." Just before he began, a guest arose and said:

"I fancy that Mr. Dunbar's poem may be a bit unintelligible to those who have not traveled in the States. The Co'n Pone is a peculiar American dish in which the Southern negroes bake their cakes." Then he sat down.

The poet was too polite to correct the traveler, and to this day many who heard him believe the darkey's fragrant pones are Yankee skillets.—*The Saturday Evening Post.*

Cogitations.

The man born in a cabin may some day name a cabinet.

You can't size up an orator by the dimensions of his mouth.

The roughest roads are those we have not traveled over.

Many handkerchiefs are moistened by sorrow that never occurs.

A bridge should never be condemned until it has been tried by its piers.

A politician left alone with his conscience sees mighty little company.

In diving to the bottom of pleasures we bring up more gravel than pearls.

Women are not inventive, as a rule. They have no eagerness for new wrinkles.

Hope builds a nest in a man's heart where disappointment hatches its brood.

Minds of moderate caliber ordinarily condemn everything which is beyond their range.

—*Texas Siftings.*

There was a young lady of Wilts,
Who walked thro' Scotland on stilts;
When they said, "Oh, how shocking to show so much stocking!"
She said, "What about you and your kilts?"

The Man and the Lion.

A man and a lion once argued as to which belonged to the nobler race. The former called the attention of the lion to a monument on which was sculptured a man striding over a vanquished lion. "That proves nothing at all," said the lion. "If a lion had been the carver, he would have made the lion striding over the man."

Origin of Marriage Customs.

THE OLDEST LOVE LETTER IN THE WORLD, SENT TO AN EGYPTIAN PRINCESS.

The oldest love letter in the world is in the British Museum. It is a proposal of marriage made to an Egyptian Princess, and it was written 3,500 years ago. It is in the form of an inscribed brick, and is therefore not only the oldest, but also the most substantial love letter in existence.

The first silver wedding dates back to the time of Hugh Capet. Two servants had grown gray in his service, a man and a woman, and what could he give them as a reward? Calling the woman, he said: "Your service is great, greater than this man's whose service is great enough, for the woman always finds work harder than a man, and, therefore, I will give you a reward. At your age I know of none better than a dowry and a husband. The dowry is here—this farm from this time forth belongs to you. If this man who has worked with you five and twenty years is willing to marry you, then the husband is ready."

"Your Majesty," said the old servant, "how is it possible that we should marry, having already silver hairs?"

"Then it shall be a silver wedding," and the king gave the couple silver enough to keep them in plenty. This soon became known all over France, and it became a fashion after twenty-five years of married life to celebrate a silver wedding.

The practice of the wife assuming the husband's name at marriage is a Roman custom. Julia married to Pompey became Julia of Pompey. In latter times married women signed their names in the same manner, but omitted the "of." In Iceland the opposite has been the custom. There the husband assumes the wife's name.

The word "wedding" is derived from the wed or security which the Anglo-Saxon bridegroom gave at espousals for the due performance of his contract. The wed was held by trustees, and in addition to it the bridegroom wore an espousal ring. As for the wedding ring, it was first designed by Prometheus, according to tradition, and fashioned out of adamant and iron by Tubal Cain, and was given by Adam to his son to this end, that he therewith should espouse a wife.

The wedding cake is the remains of a custom whereby a Roman bride held in her left hand three wheat ears, and many centuries later, an English bride wore a chaplet of wheat. The bridesmaids threw grain or corn or small bits of cake upon the heads of the newly married and the guests picked up the pieces and ate them. The wedding cake did not come into general use until the last century, and was then composed of solid blocks laid together, iced all over, so that when the outer crust was broken over the bride's head, the cakes inside fell on the floor and were distributed among the guests. Bridal favors are of Danish origin. The true lovers' knot was first designed by Danish hearts and derived its designation from the Danish "truelofa," "I plight my troth."

The throwing of the slipper comes from the custom of the bride of the father giving a shoe to the new husband in token of transference of power over her, the bridegroom lightly tapping the bride's head with it.

The best man is a survivor of the band of friends who accompanied the suitor in his wife-winning and kept watch for him over the bride's tribe while the lover sought the opportunity to carry off his prize. The honeymoon journey is the hurried flight of the husband with his wife to escape the vengeance of the pursuing tribe. The presents given the bridesmaids and ushers are simply a relic of the rough bribery used by the ancient bridegroom among his personal friends so that they would assist in the capture of his chosen bride when the day arrived on which he had determined to carry her off. In the fifteenth century a bride—if one of the aristocracy—often received twenty rings from her relatives and six from the bridegroom—two when he became interested in her, two for the espousal, and two when they were married.

How Lead Pencils are Made.

Lead pencils are made altogether by machinery. The best quality of cedar is cut into proper lengths, shaped the exact size of the pencil, then split and grooved to admit the lead. The "lead" is not lead at all, but plumbago, or almost pure carbon, the only admixture being a little oxide of iron. It is ground by machinery, and, with a little mixture of glue, or some other substance to render it strongly adhesive, is molded into the shape required. It is then placed in the grooves, already prepared, while a special device spreads glue over its surface and that of the wood, presses the two halves together, and thus completes the pencil, which is then passed on to be painted or varnished, dried and packed. The colored pencils are made of ochre, colored chalk, or other materials.

Telegram Speeds.

The time a telegram needs to go from London to Alexandria is 20 minutes; to Bombay, about one hour; to Pekin, two hours, and to Melbourne, three hours; from London to New York, 2½ minutes.

He was Easy in His Mind.

Clergyman—My dear man, are you ready to die?

Ole Kaintuck—I reckon so; I have the doctor's consent!

Clergyman—The doctor's consent, did you say?

Ole Kaintuck—Yep; he told me I might go any time.

Our Library Table.

"FROM CAPE TOWN TO LADYSMITH." G. W. Steevens.—A more appropriate book for this issue's review could hardly be. It is a compilation of letters written by the late lamented G. W. Steevens to the *Daily Mail* (London, England) from South Africa. He had a peculiar faculty of entering into the very heart of whatever circumstances he might be in; thus his writings were so natural, so spontaneous, so true, that this book must ever stand as one of the very finest ever written upon this terrible war. A few extracts suffice to show this versatility: "After the surprise of being ashore again (this on arriving), the first thing to notice was the air. It was as clear—but there is nothing else in existence clear enough with which to compare it. You felt that all your life hitherto you had been breathing mud and looking out on the world through fog." Then this description of the battle of Elandslaagte: "As the men moved forward before the enemy, the heavens were opened. From the eastern sky swept a sheet shower of rain. With the first stabbing drops, horses turned their heads away trembling, and no whip or spur could bring them up to it. It drove through mackintoshes as if they were blotting paper. The air was filled with hissing. . . . . You would have said that the heavens had opened to drown the wrath of man. And through it the guns still thundered and the Khaki column pushed doggedly on. The infantry came along the boulders and began to open out . . . . . and then burst forth that other storm of lead, of blood, of death. . . . . The regiment pushed on. They came to a rocky ridge about twenty feet high. They clung to cover, firing, then rose and were away among the shrill bullets again . . . . . down again, fire again, up again and on! Another ridge won and passed." . . . . . Space will not admit of much fuller extract. The accounts are simply glorious. The end of this battle reads thus: "Thirty-two miles without rest, four days without a square meal, six nights (for many) without a stretch of sleep, still found them soldiers at the end!"

Then we see his humorous side: "'That gunner,' said the captain, waving his stick at Surprise Hill, 'is a German. Nobody but a German athiest would have fired upon us at breakfast, lunch and dinner the same Sunday. It got too hot for us when he put one ten yards from the cook—anybody else we could spare!'"

Then the homesickness: "Even as the constant bluejacket says, 'Right gun hill up, sir,' there floats from below—ting, ting, ting, ting, ting. Five bells! The rock-rending double bang floats over you unheard. The hot iron hills swim away. Five bells—and you are on deck, swishing through blue water among white-clad ladies in long chairs, going home!" Alas! that dream of going home was never realized. A few weeks more and there was a midnight funeral at Ladysmith cemetery under the falling rain and with the Boer searchlight flashing through the darkness.

A last chapter is added to this fascinating book by the author's friend, Mr. Vernon Blackburn, who gives interesting details of Mr. Steevens himself—a brave, talented, lovable man, utterly unspoilt by success. Everyone, young and old, should read this book, carrying us into the very heart of the present stirring events. Copp, Clark & Co., Toronto.

FELIX.

How I have Dealt with Them.

How few there are who would thus dare to address God each night: "Lord, deal with me tomorrow as I have this day dealt with others . . those to whom I was harsh, and from malice or to show my own superiority, exposed their failings; others, to whom, from pride or dislike, I refused to speak—one I have avoided—another I cannot like becauses she displeases me—I will not forgive—to whom I will not show any kindness."

And yet, let us never forget, that sooner or later, God will do unto us even as we have done unto them.

Puzzles.

[The following prizes are offered every quarter, beginning with months of April, July and October: For answers to puzzles during each quarter—1st prize, $1.50; 2nd, $1.00; 3rd, 75c. For original puzzles—1st, $1.00; 2nd, 75c.; 3rd, 50c.

This column is open to all who comply with the following rules: Puzzles must be original—that is, must not be copied from other papers; they must be written on one side only of paper, and sender's name signed to each puzzle; answers must accompany all original puzzles (preferably on separate paper). It is not necessary to write out puzzles to which you send answers—the number of puzzle and date of issue is sufficient. Partial answers will receive credit. Work intended for first issue of any month should reach Pakenham not later than the 15th of the month previous; that for second issue not later than the 5th of that month. Leave envelope open, mark "Printer's Copy" in one corner, and letter will come for one cent. Address all work to Miss Ada Armand, Pakenham, Ont.]

1—CHARADE.

In ancient days a *Second* came
Into a country town,
Who said he'd kill the people
If they didn't stir around
And get him something good to eat;
Also a bed whereon to sleep.
The frightened people of the town,
In terror of their fate,
Sent for the *Total* great to come
And *One* him up or send him home
For fear they would be ate.
The *Second* slowly thought awhile.
It was of tricks, I ween,
He *Oned* the *Total* up instead,
Then quickly out of town he fled,
And never more was seen.

ROLLY.

2—DROP-LETTER PALINDROME.

(The phrase spells the same backwards and forwards.)

Another story comes from Africa of a missionary whose life was saved by having with him an almanac in which was predicted an eclipse of the moon. The savages had seized him and thrown him into prison preparatory to killing him next day. He told them that God was angry with them for what they had done and that that very night the moon would refuse to give the light. The savages

S-w-o-m-n-f-f-n-m-o-w-S

in sight, but when the eclipse commenced they were terror-stricken, The missionary was never afterwards molested.

F. L. S.

3—ENIGMA.

An odd old man lives in "Squeerstown,"
His "lumbar" regions are in his head,
He "never" drinks from out a spring
"Because" the spring is in his bed;
He says he'll "never" go to Greece
Because he "never" cared for fat,
And the only band he'll "listen" to
Is the "crape" band 'round his hat.
Though very kind and warm of "heart,"
In "religion" he is very cold,
"For," he says he walks upon his heel
That he may save "his" soul;
No "matter" what you talk about,
He is sure to "crack" a joke,
And when he saw the church "afire"
He "ran" shouting holy smoke.
He talks the funniest "talking"
That was ever "talked" in talks,
And he is "talky" when he's talking,
For he talks such talky talk.

Now look within my quotation marks,
And two glorious names you'll see,
Names honored by both young and old,
Names dear to you and me.

IKE ICICLE.

4—COUPLED SQUARES.

	A		B	
1—	x x x x	x x x x		1A—A point of land; 1B, a
2—	x x x x	x x x x		large place; 1A+1B, a
3—	x x x x	x x x x		place of importance
4—	x x x x	x x x x		in the present war.

2A—A title (trs.); 2B, a musical instrument (trs.); 2A+2B, the lower part of the ear, and an interjection (trs.).

3A—Arguments in favor of; 3B, to use as clothing; 3A+3B, to swear in favor of.

4A—A girl's name (abr.); 4B, a cape in Europe; 4A+4B, a place noted for a great naval battle. M. N.

5—HIDDEN PALINDROME.

A once able-bodied soldier lay upon his dying bed,
No mother's tender hand was near to cool the fevered head,
"Oh for a glance at home, at those I love," said he,
"Oh for the last to kiss my lips ere I came o'er the sea,
I long to see her snowy head and kiss her wrinkled cheeks,
I saw her in a dream last night a-herding 'mong the reeks,
But alas, cruel fate! In Elba I must slumber thro' death's sleep."

IKE ICICLE.

6—CHARADE.

I again come back to our "dom."
First, cousins, am I welcome?
'Tis nearly two years since I failed to call,
Pray! where O, where have the others gone?

Once 'twas *Second*, MacMurray and "Kit."
Now I recognize they're not in it.
Perhaps like *Whole* you will be relieved,
If our *First's* wish can be achieved.

MURIEL DAY.

7—SQUARE.

1, A picture-casing; 2, a black bird; 3, to ward off; 4, to absorb; 5, to go in. F. L. S.

8—CHARADE (*Three* is abr.).

As I walked the street
I *one* persons not few
Who wore on their heads
Caps of strange *two*.
They came from the *three*
In warlike array
To join brave *Complete*
In the South far away. M. N.

Answers to March 15th Puzzles.

1—Lorna Doone.

2—Mien, mine, Emin, mein.

3—
A m e n D a c i A
s T e e r a t I o
h o R e b i R t h } Atria.
m a r I a T t i c
m a n n A t l a s

4—Margin.

5—Offender.

6—
t i a r a
i h r a m
a r a k i
r a k e s
a m i s s

7—Moppet.

8—Wedlock.

SOLVERS TO MARCH 15TH PUZZLES.

"Diana," "Rolly," Sila Jackson, M. N., J. McLean, M. R. G.

ADDITIONAL SOLVERS TO MARCH 1ST PUZZLES.

Muriel Day, J. McLean, Sila Jackson, M. R. G., M. N.

COUSINLY CHAT.

Muriel.—So very glad to hear from you again. "Kit" and most of the old cousins have deserted, but we have some very good ones still.

"Net."—I am sorry I cannot use your puzzles; your rebuses are much too simple. Try again, little girl.

"Ike."—A hard time on your fraternity just now, is it not? I like your other puzzles better than that one you explained. Why do you not solve?

"Sila."—I am ordered to pay no attention to work that does not arrive in time, so I hope you will keep your promise. Indeed you are not alone, by any means.

M. R. G.—Please send your work more promptly.

PRIZEWINNING PUZZLERS.

The prizes for original puzzles during January, February and March are awarded as follows: 1st, $1, to "Rolly" (Howard Mills, Salem P. O., Ont.); 2nd, 75 cents, to M. N., (Mary Nagle, West Huntley, Ont.); 3rd, 50 cents, to "Ike Icicle" (G. J. McCormac, St. George's, P. E. I.).

The prizes for solutions will be announced next issue.

GOSSIP.

D. A. Graham, Parkhill, Ont., informs us that he has bought and imported some choice stock to head his poultry yards this season. See his advertisement in this issue.

R. Mitchell & Son, Nelson, Ont., write:—"We have recently sold to James Robertson, of Strabane, one good thick yearling bull; to Mr. Wood, Toronto, a good red bull calf; to Capt. Morden, of Oakville, a very stylish red bull. Mr. Wm. Conley visited us and selected for Mr. Chrystal, of Michigan, eight straight, smooth heifers and a very handsome bull calf. We still have three right good bulls left ready for service, which are priced right. On April 7th, J. F. Mitchell sailed, per SS. Parisian, for Britain, and will visit the leading Shorthorn herds of England and Scotland."

An average of $275 is reported on 44 head of Shorthorns sold at Chicago, March 27th, being drafts from the herds of Messrs. Forbes, Prather, Bates and Wright and Boyden. The highest price was $1,000, for Golden Venus 3rd, by Baron Gloster. The highest price for a bull was $500, for the 10-months calf, Golden Link, by Bridgroom, bought by S. E. Prather.

On March 28th, 43 head from the herds of Messrs. Fry, Green Bros., Peak, and Wilson, averaged $175—Mr. Fry's average for his eight head being $235; Green Bros.' sixteen averaged $231. The highest price was $510, for imp. Lancer.

At Humboldt, Iowa, Mr. E. D. Converse sold 40 head of Shorthorns at an average of $239.50, the highest price being $800 for the five-year-old cow, Sweetbriar of Oak Hill, by King James. Cherry Sweetbriar, a two-year-old heifer, brought $650, and Scotch Pine Sweetbriar $530; $465, for Red Gauntlet, was the highest price for a bull.

DEATH OF MR. JOHN BELL.

We regret to have to record the death of Mr. John Bell, of Amber, York Co., Ont., on April 3rd, at the age of 52 years. Mr. Bell was one of the first importers to Canada of Tamworth swine, having made an importation in the year 1889, which is the earliest importation recorded in the Dominion Herd Book for that breed. He was also an extensive breeder and importer of Clydesdale horses, a very large and useful stud of which, as well as a good herd of Tamworths, he kept at "Clydesdale Farm" up to the time of his decease. He was a careful and discriminating breeder, and an honest and upright man in business, and enjoyed in large measure the confidence and respect of his brother breeders and of all who had dealings with him.

WM. STEWART & SON'S AYRSHIRES, POULTRY, AND COLLIE DOGS.

At the Menie Stock Farm, at Menie, Ont., we found the usual activity characteristic of Messrs. Stewart & Son along the line of stock production and development. Since they have got their Ayrshire cows comfortably stalled in their new stables they feel themselves in a stronger position than ever to produce even better stock than formerly; yet, not to the better stabling facilities alone do we look for improvement, for when we passed behind and before the animals we at once recognized that additional matrons had been added. Sprightly (imp.), the dam of the noted show cow, Jean Armour, has taken quarters here with the imported cow, Primrose of Harper Land, adding greatly to the already long string of worthy matrons. Jean Armour is in full bloom, and her August bull calf is one of the promising things on the farm, tracing, as he does, through the most worthy of Ayrshire pedigrees. In him is the blood of Glencairn of Burnside, Glencairn of Maple Grove, by Lord Glencairn, in Scotland, while the sire of his dam was the noted Silver King, a pedigree sufficiently strong to attract the best judgment of the leading Canadian importers. Lady Ottawa and Ayrshire Maggie are also worthy young cows; not only good ones at Menie, but good abroad, or wherever they have had an opportunity of being impartially compared in the leading showyards. And this is not all, for we saw Moss Rose, by Douglas of Loudoun Hill, one of the family of four that won the first premium at the World's Fair, Chicago, and was not defeated that year. White Rose, half-sister, out of Nellie Osborne of Menie, a splendid young cow rising 3, with numerous other worthy young matrons giving equal promise. The firm have employed many splendid sires, and speak with pride and confidence of the sons and daughters of Dainty Lad, Douglas of Loudoun Hill, and the youngsters now arriving from the services of White Chief of St. Anns and Caspian, young sires as full of quality and Ayrshire characteristics as they are rich in up-to-date breeding. The firm's past showyard success has only stimulated them to greater effort, and we look forward to fully more formidable competition from them with Ayrshires in the future.

In poultry, Mr. Stewart, Jr., has become a recognized factor in the leading poultry shows, and his name has reached beyond the Province as a leader in the more serviceable breeds from the farmer's standpoint, frequently importing sires at great expense from the large English and American pens. His specialties are the leading varieties of ducks, geese, and turkeys; the different varieties each of Brahmas, Game, Minorcas, Wyandottes, Dorkings, Hamburgs, Houdans, Polands, and Leghorns.

Pure-bred collie dogs are also among the firm's specialties, with foundation stock tracing direct to Scotch breeding. Watch the firm's offerings.

NOTICE.

Schoolroom Decoration.—An interesting paper on the subject of "Schoolroom Decoration in Ontario—Historical and Patriotic" addressed to Canadian Historical Societies, prepared by Mr. J. George Hodgins, of the Ontario Education Department, Toronto, has been issued in pamphlet form, well printed and illustrated. It will prove of special interest to public school teachers and trustees at the present history-making period of Canadian and British affairs. We have devoted a good many articles to the improvement of the country school grounds by planting trees, shrubs, flowers, etc., and doubtless much good can be done in cultivating a Canadian national sentiment by suitable adornment of the interior of the schoolhouse, and inculcating a love for Canadian literature, but we are sure that it is not wise to let the latter all become infused with the spirit of war

Our

Agricultural Library Offer.

A RECENT bulletin prepared by Prof. J. B. Reynolds, of the Ontario Agricultural College, Guelph, and referred to editorially in this issue, gives a list of meritorious books on Agriculture, Live Stock, Dairying, and Fruit Growing, from which we have made a selection and added a few others:

SOIL AND CROP.

THE FERTILITY OF THE LAND.—*Roberts.* 372 pages. $1.25.
A BOOK ON SILAGE.—*Woll.* 185 pages. $1.00.
SOILS AND CROPS.—*Morrow & Hunt.* $1.00.
FORAGE CROPS.—*Thos. Shaw.* $1.00.

LIVE STOCK.

THE STUDY OF BREEDS (CATTLE, SHEEP, AND SWINE).—*Prof. Shaw.* 400 pages; 60 engravings. $1.50.
HORSE BREEDING.—*Sanders.* 422 pages. $1.50.
CATTLE BREEDING.—*Warfield.* 386 pages. $2.00.
THE DOMESTIC SHEEP.—*Stewart.* 371 pages. $1.75.
PIGS—BREEDS AND MANAGEMENT.—*Sanders Spencer.* 175 pages. $1.00.
FEEDS AND FEEDING.—*Henry.* 600 pages. $2.00.

GENERAL AGRICULTURE.

AGRICULTURE.—*C. C. James.* 200 pages. 30 cents.
FIRST PRINCIPLES OF AGRICULTURE.—*Voorhees.* 207 pages. $1.00.
AGRICULTURE.—*Storer.* 1,875 pages, in three volumes. $5.00.
CHEMISTRY OF THE FARM.—*Warington.* 183 pages. 90 cents.
FARMYARD MANURE.—*Aikman.* 65 pages. 50 cents.
SUCCESSFUL FARMING.—*Wm. Rennie.* 312 pages. $1.50.

DAIRYING.

AMERICAN DAIRYING.—*H. B. Gurler.* 252 pages. $1.00.
THE BOOK OF THE DAIRY.—*Fleischmann.* 330 pages. $2.75.
MILK AND ITS PRODUCTS.—*Wing.* 230 pages. $1.00.

POULTRY.

ARTIFICIAL INCUBATING AND BROODING.—*Cypher.* 146 pages. 50 cents.
PRACTICAL POULTRY-KEEPER.—*Wright.* $2.00.

APIARY.

THE HONEYBEE.—*Langstroth.* 521 pages. $1.40.

FRUIT, FLOWERS, AND VEGETABLES.

VEGETABLE GARDENING.—*Green.* 224 pages. $1.25.
FLOWERS AND HOW TO GROW THEM.—*Rexford.* 175 pages. 50 cents.
THE PRINCIPLES OF FRUIT-GROWING.—*Bailey.* 514 pages. $1.25.
BUSH FRUITS.—*Card.* 537 pages. $1.50.
HORTICULTURIST'S RULE BOOK.—*Bailey.* 312 pages. 75 cents.

PLANT AND ANIMAL LIFE.

THE STORY OF THE PLANTS.—*Grant Allen.* 213 pages. 40 cents.
THE STUDY OF ANIMAL LIFE.—*J. A. Thomson.* 375 pages. $1.75.
INSECTS INJURIOUS TO FRUITS.—*Saunders.* 436 pages. $2.00.

HOW TO OBTAIN THESE BOOKS:

We will furnish present subscribers any of the above books as premiums for obtaining new yearly subscribers to the FARMER'S ADVOCATE, at $1.00 each, according to the following scale:

Books valued at from	$0.30	to	$0.65,	for 1	new subscriber.
" "	.90	to	1.25,	for 2	"
" "	1.50	to	1.75,	for 3	"
" "	2.00	to	2.50,	for 4	"
" "	2.75			for 5	"
" "	5.00			for 9	"

We can furnish any of the above books at the regular retail price, which is given opposite the title of the book. By a careful study of the above list, any farmer can choose a select list of books suited to his needs, and for a small outlay in cash, or effort in obtaining new subscribers for the ADVOCATE, secure the nucleus of a useful library.

NOTICES.

The Study of Breeds.—The new book by Prof Thos. Shaw, entitled "The Study of Breeds," and included in our Agricultural Library offer elsewhere in this issue, is yet hardly cold from the press. A copy received from the publishers, Orange Judd Company, 52 Lafayette Place, New York, and carefully reviewed, indicates to us that it is a valuable and reliable work on the origin, history and characteristics of all the pedigreed breeds of cattle, sheep and swine now found in America. The author has for some twelve years gathered all the reliable data at command concerning these breeds of stock, now so important to the agriculture of America. The work, of some 400 pages, with nearly 100 full-page illustrations of typical animals, treats of the history and characteristics of each breed, referring to relative size, adaptability, early maturity, feeding and breeding qualities, and uses in crossing and grading. It gives the recognized standards or scales of points, where these exist, and where they do not, standards are submitted. It is a summary or condensation, stated in a manner at once clear, concise and comprehensive. The book will become a valuable addition to many live-stock libraries, where it will prove a reliable guide in a study and comparisons of the various breeds referred to.

The Winter Show.

ANNUAL MEETING OF DIRECTORS.

The annual meeting of the Directors of the Ontario Provincial Winter Show was held in Toronto, March 20th. The question of the selection of a place for the permanent location of the show came up for decision, the representatives of the Cattle Breeders' Association, the Sheep Breeders' Association and the Swine Breeders' Association voting separately on the only two cities (Guelph and Brantford) presenting requisitions or claims for the favor of the delegates. In the two first named associations there was a clear majority in favor of Guelph, and the ballot of Swine Breeders declared for Brantford.

The date of the show was fixed for the second week in December, on the 11th to 15th, which will be the week following the Chicago Fat Stock Show. It was decided that the show be free to members of the Breeders' Associations and the students of the O. A. C., and that any Farmers' Institute which contributes $5 to the Winter Fair Association shall have the right of free admission for all its members.

The Ontario Poultry Association, through its delegates, agreed to amalgamate with the Winter Fair Association and to hold its annual show at the same time and place, and announced that Mr. A. P. Westervelt had been elected Secretary of the Poultry Association. It was announced that the block test will this year be extended to beef cattle as well as to sheep and pigs. The general rule instructing judges in the classes for live animals to judge them from a consumer's standpoint was changed to read from a breeder's and consumer's standpoint. In the dairy test the value of food consumed during the test is to be taken into account in making the awards. It was decided that all animals to be slaughtered must first be shown alive, and must carry ear marks for identification throughout the competition and display so that visitors may follow the animals from the showring to the block test. The weight of hogs shown in the bacon classes is to be limited, from 160 to 220 pounds.

Officers Elected.—The following were elected officers of the Winter Show Association for the current year:—President, John I. Hobson, Guelph; Vice-President, A. W. Smith, Maple Lodge; Secretary-Treasurer, A. P. Westervelt, Toronto. The Directors of the Swine Breeders' Association decided to grant $85 to the prize list of the Winnipeg Industrial Exhibition and $40 to the Brandon Fair.

The Swine Breeders' Association agreed to a proposition to issue the Record for the future quarterly instead of yearly as formerly.

The Cattle Breeders' Association agreed to accept as members the members of the Shorthorn, the Ayrshire and the Holstein Breeders' Associations on payment of fifty cents per member from the several associations. Other Cattle Breeders' Associations may affiliate with the Dominion Cattle Breeders' Association on the same conditions.

GOSSIP.

☞ *In writing to advertisers, mention the "Farmer's Advocate."*

At the joint sale of Herefords at Independence, Mo., March 20th and 21st, from the herds of Gudgell & Simpson, of that place, and H. H. Clough, of Elyria, O., 99 head were sold at very uniform prices, making an average of $259.15. The highest price for a bull was $605, for Douglas, by Lamplighter, sold to W. L. Bass, El Dorado, Kan., and the highest for a female, $650, for Lillian, by Roseland, to Scharbauer Bros., Midland, Texas.

We regret to note the recent death of Mr. Harry L. Goodall, chief editor and publisher of the Drover's Journal, Chicago, Ill., the publication of which he began in 1873, issued as a weekly, semi-weekly, and daily. It proved a most successful enterprise, and we rank it among our most valued exchanges. Deceased was a native of Vermont, where he was born about sixty years ago. A man of the highest ability, he was at the same time upright in character, just and generous in all his dealings, and a model citizen.

F. Martindale, York, Ont., writes:—"I find that it pays to advertise in the FARMER'S ADVOCATE. By so doing I have found a ready sale for all my Shorthorn bulls old enough for the market. The following are the sales I have made during the winter: To Mr. Geo. Hawes, Spry, Bruce Co., one 17-months bull; to Isaac Usher & Son, Queenston, one 16-months bull; to Ira Minor, Lowbanks, one 10-months bull; and an 8-months bull to W. R. Robb, Comox, B. C.; one 2-months bull calf to Samuel Lyons, Byng, out of the cow I won first prize on under 36 months at Provincial dairy test, London, in December; also a heifer calf one month old, to Oscar Shirley, Houlton, Maine, out of the same cow as the dam of the calf I sold to Mr. Lyons."

MR. A. C. HALLMAN'S HOLSTEINS, TAMWORTHS, AND BARRED PLYMOUTH ROCKS, NEAR NEW DUNDEE, IN WATERLOO CO., ONT.

A representative of the ADVOCATE recently called upon Mr. A. C. Hallman, near New Dundee, and found that gentleman actively engaged with his stock and herd books. In giving a short review of his present stock, it will be remembered that, as with all other enterprises, he laid the foundation of his herd of Holstein cattle on good representative individuals from the tribes whose dairying records stood the highest in the breed and attracted the greatest attention. In the introduction of the breed into this country, Mr. Hallman purchased his foundation stock from such noted tribes as the Aaggie, Netherland, Mechthilde, Artis, Acma and Hengerveld, upon which he has used sires having high individual merit and strong, rich breeding.

Among the bulls employed we might again briefly refer to Flora's Sir Jacob, as four of his daughters are now in the herd, one having recently calved and is yielding as a two-year-old over forty pounds daily, with fair prospects of exceeding that by at least ten pounds. She is a choice individual, with a beautifully-balanced udder of immense capacity. Netherland Statesman's Cornelius also left some worthy females in this herd, which are taking their place among the good ones of the breed.

The stock bull now doing service is the richly-bred two-year-old Judge Akkrum De Kol 3rd, a son of Judge Akkrum De Kol 2nd, a grandson of the famous De Kol 2nd. His dam, Mositta, carries a combination of the famous Aaggie, Netherland and Pietertje strain with their long list of official record-producers. In conformation, Judge Akkrum De Kol 3rd is a typical dairy bull, with lots of style, quality and constitution, covered by a beautiful skin and mounted on as good quality of underpinnings as we have seen. His dairy conformation and rudimentary indications are excellent, which, coupled with his excellent breeding, will infuse into his progeny sufficient of his De Kol inheritance to be of inestimable value to his owner's herd.

Mr. Hallman has a choice row of yearling heifers on hand of the right sort, among them being Queen Hengerveld De Kol, by De Kol 2nd's Butter Boy 2nd, and out of Manor Queen, and of her we might enlarge if space permitted, as she carries a strong combination of good breeding in her pedigree and is a right individual.

A dozen Tamworth brood sows are being carried over for the spring farrowing, and it is already an established fact that Mr. Hallman's success as a breeder has largely been from his keen foresight and judgment in selecting and proper mating of his matrons, and if the catalogue of prizewinning Tamworths up to date were spread before the reader and a comparison of Mr. Hallman's brood sow list were analyzed, they would be found to correspond in the main. Many of the most recent English showyard-winning representatives are also collected here. The grand sow, Whitacre Countess, which Mr. Brethour personally selected as the best show and brood sow in England, is among the number, and when Mr. Brethour said that he believed her the best sow in England, his judgment was sound, as later evidence has shown. Her daughter, Whitacre Beauty, in Mr. D. W. Philip's hands, was first and champion at the Royal Show at Maidstone, and first at the Bath and West Show at Exeter in 1899, and in this country she produced the first and sweepstakes boar at Winnipeg last year, although handicapped in age. A dozen brood sows are being carried over this season, which have and will farrow to the services of the imported boars, British King and Whitacre Crystal, and although these sires are most favorably situated to make a record for themselves among such a class of sows, we feel that their prospects are much brightened by following such a worthy sire as imp. Nimrod, whose two years of service in this herd did much towards its advancement. Whitacre Crystal and British Hero are two types of animals, although somewhat similarly and equally well bred, yet, as each is peculiarly strong where the other may be criticised, we cannot but predict advancement from their combined employment. No man has worked harder or with more judgment in the advancement of the breed than Mr. A. C. Hallman.

Barred Plymouth Rocks are the poultry which receive exclusive attention, to which much earnest and careful study has been given. Suitable accommodations are provided, and the best individuals selected for breeding stock. When we called we found upwards of a dozen choice cockerels which are held for sale. See ad.

GOSSIP.

At the annual sale of Shorthorns from the herd of Mr. H. F. Brown, Minneapolis, Minn., on March 26th, the 45 animals sold brought an average price of $342.80, the 35 females averaging $368.60, and the 10 bulls $252.50. The champion 7-year-old show bull, Nominee, formerly owned and shown in Canada with much success by Capt. T. E. Robson, M. P. P., was sold for $510 to Geo. Hornbeck, Mount Sterling, O. The fact that he had been but little used in the herd is said to have told against him in the bidding. The show cow, Spicy of Browndale 4th, sold for $1,100, to W. I. Wood, Williamsport, O., and was the highest-priced animal in the sale.

To head his fine herd of Shorthorns, Mr. John T. Gibson, Denfield, Ont., has purchased from Mr. J. M. Gardhouse, of Highfield, the imported Duthie-bred bull, Prime Minister =1528= (63014), by Chesterfield (37049), dam Princess Lovely, by Field Marshal, grandam by Heir of Englishman. Prime Minister is a grand bull, and has proved an impressive sire, as well as a prizewinner at Toronto, and his breeding with such magnificent top-crosses is of the very best. Mr. Gibson is to be congratulated on securing so desirable a bull to use in his herd.

Mr. Wm. Thorn, Lynedoch, Ont., writes: "My Ayrshires have come through the winter in fine condition. Royal Star has proved himself a choice stock animal from the fine quality of his calves this spring, and sales are brisk. Since last report I have sold two calves to James Dowswell, Glenshee; three calves to S. N. Colver, Simcoe, Ont.; one yearling bull to James Walsham, Portage la Prairie; one heifer to Wellington Hardy, Pomeroy, Man. Our sales in poultry have also been very large. We have sold as high as 32 birds in six days. We have shipped birds this spring to Manitoba and Northwest Territories, different parts of Ontario and United States. We have added a 200-egg size incubator and brooder to our poultry yards, in order to supply the great demand for birds, and are daily receiving orders for eggs for hatching." See Mr. Thorn's ad. of Ayrshires and Poultry.

DAVID BENNING'S AYRSHIRE CATTLE, NEAR WILLIAMSTOWN, ONT.

A representative of the FARMER'S ADVOCATE recently partook of friendly hospitality at Mr. David Benning's comfortable home, near Williamstown, Ont., and looked over the herds and flocks on his farm. On page 706 of the last Xmas number of the ADVOCATE may be seen an illustration of representatives of Mr. Benning's herd of Ayrshire cattle and his new barns, and since the animals have taken possession of their new quarters, all have a contented and comfortable appearance. The arrangement of the cattle stables is all their owner would have them be, and from a sanitary point of view we consider them perfect in detail, being well lighted, drained and ventilated, in addition to their well-considered plans for convenience. As is well known, this herd is made up of representatives of such strains as Floss, Buttercup, Jennie of Williamstown, Rosie (from Blanche, imp.), with foundations from descendants of earlier importations made by Mr. Benning.

Among other points, Mr. Benning places great stress upon the importance of the employment of the proper sires, and only admits of the truest type, possessing the strongest, yet balanced, masculine characteristics of the breed in combination with ancestral inheritance of the strongest constitutions, the result of which has been repeatedly demonstrated at the larger showyard competitions, for it will be remembered that the sweepstakes bull and heifer, Tom Brown and White Floss, at the World's Fair, were products of Mr. Benning's skill. Tom Brown was undoubtedly one of if not the best bull in the breed, while White Floss has become famous wherever shown or known.

The same prize-producing families are very largely represented in the forty odd females now on the farm, and in viewing them one cannot but admire their uniformity, with constitutional vigor and fine dairying qualities.

The bunch of ten yearling heifers would be hard to duplicate—fine in quality, uniform in type, and strong, rugged animals, true in dairy conformation, while the younger crop are of the same type as their older relatives. Many good bulls have been employed, but none has come up to Mr. Benning's type better than the young Carrick Lad of St. Annes, by Napoleon of Auchenbraim (imp.), and out of Annie of Barcheskie (imp.), now heading the herd and from which the young stock are arriving.

The firm have for disposal a few choice young bulls fit for service, by Saladin and Caspian of St. Annes, and out of such cows as Silver Lass, Lady Ruth, Pessara (a full sister of the great White Floss), and other noted families, any of which are qualified to make herd headers.

A few choice females are always held for sale.

Berkshire pigs are also given a place, and only the best families are represented.

AN ENGLISH JERSEY SALE.

Thirty yearling Jerseys, heifers and bulls, from the herd of Mrs. McIntosh, Havering Park, were sold by auction, March 30th, making an average of $205 each. The highest price was $400, for Havering Buttercup 3rd.

DISPERSION SALE OF HILLHURST HACKNEYS.

The catalogue of Hon. M. H. Cochrane's registered Hackneys to be dispersed at auction at Grand's Repository, Toronto, on the morning of Saturday, April 28th, the last day of the Canadian Horse Show, is issued, and shows that a magnificent stud is to be disposed of. This sale will include the best lot of Hackneys ever offered in Canada at auction. The imported stallion, Barthorpe Performer (illustrated in this issue), the king of the sale, is not only a celebrated showring winner, having won 1st prizes at the New York Horse Show, the Toronto Spring Show, and the Industrial Exhibition, but comes of stock not excelled in Britain, being sired by and ranking as one of the best sons of the noted Garton Duke of Connaught, illustrated in the April 2nd issue of the FARMER'S ADVOCATE, who has succeeded Danegelt as the premier Hackney sire of Great Britain, who also sired the stallion, McKinley, winner of first and championship at the London (Eng.) Hackney Show, 1900. The offerings also include the stallions: Matchless Performer, by Barthorpe Performer; Majestic 2nd, by Hayton Shales; Everingsham, by Hillhurst Sensation—all of which are two-year-olds of promise. The females offered include the three imported mares, Lady Lynn, Nancy, and Cameo, in foal to famous English stallions, and a number of others of exceptional quality and breeding, from six years old down to a single yearling, five of them being three-year-olds. This great sale offers exceptional opportunities to secure the best class of stock of a very desirable breed of increasing popularity. Read Hon. Mr. Cochrane's advertisement, and attend the sale on April 28th, in Toronto, the last day of the Horse Show. Owing to a mistaken order, this sale was wrongfully advertised in our last issue to take place on Tuesday, April 17th.

SPLENDID SALES FROM THE PETTIT HERD.

W. G. Pettit & Son, of Freeman, Ont., under date of March 26th, write us that they have had a very active demand for Shorthorns during the last two months and have made the following sales: To Robert Miller, Stouffville, Ont., four young bulls for the Canada Pacific Railway Co.; one young bull, 14 months, to Farmers' Club, Quebec. To J. R. Robinson, Manion, Ont., two 3-year-old cows, Strawberry Beauty and Red Cherry. To T. A. McClure, Meadowvale, Ont., the 12-months-old bull, *Favorite*, by Indian Statesman, a thick, sappy fellow that should come out a good one. To Albert Lougheed, Churchville, Ont., the 8-year-old cow, *Minnie Aldershot*, a good breeder and an excellent milker. To W. & J. Menzies, Kirkwall, Ont., *Red Knight*, a very promising young bull by Indian Statesman, from Minnie Aldershot. To W. H. Little, Trenton, Ont., the 8-months-old bull calf, *Rising Star*, by Indian Statesman, from Mara 17th. To R. & J. Featherson, Flamboro Centre, Ont., *Monitor*, a straight, smooth young bull, got by Indian Statesman. To T. E. Adams, Cresco, Ind., the yearling roan bull, *Indian Laird*, by Indian Statesman, and five straight, smooth young cows with three young calves by their side; a very profitable bunch. Many buyers will walk right by a nice, smooth, young cow, a little thin in flesh, with a good calf 2 or 3 months old by her side, and bred again to a valuable sire, and buy a fat heifer that nobody knows how she will breed. Mr. Adams is not one of this kind; he buys the kind that there is no risk in. To F. D. Harding, Martin, Mich., we sold *Gloster Chief*, by Lord Gloster, out of Mina Buckingham, of the Cruickshank Buckingham family. To J. M. Haymaker, Charlestown, Ind., *Challenger*, by Lord Gloster, a Cruickshank Duchess of Gloster, by the celebrated Abbotsford, out of Village Blossom, dam of Young Abbotsburn, the champion over all beef breeds at the World's Fair, Chicago. To Taggart Bros., Vesta, Ind., *Craibstone's Heir* (imported in dam), by Nobility, winner of first prizes at Aberdeen Show, 1898, out of Craibstone's Beauty (imp.), by Craibstone, by William of Orange, one of the most noted stock bulls in Great Britain. This young calf should make his mark. To C. E. Bladgett, Marshfield, Wis., the imported *Matabele Chief*, one of our herd bulls. We had received many tempting offers for him, but we put on a long price to keep him; but Mr. Bladgett, who has a large herd of good Shorthorns, said: "He suits me, and I am not going to look further and come back after he is sold to someone else." The price is no secret—$1,000 straight. We also sold to Mr. Bladgett five choice imported 2-year-old Scotch heifers belonging to the following popular Scotch families: Urys, Cecilias, Stamfords, Miss Ramsdens, and Crimson Flowers. To Messrs. Kains & Lee, Hartwick, Iowa, imported bull, *Red Light*, and fourteen imported heifers with six young calves by their sides. In making this purchase Messrs. Kains & Lee will take their place in the front rank as breeders of Scotch Shorthorns in the United States. Imported Red Light was got by Captain Ripley, by Captain of the Guard, and out of Red Lady 18th, by the celebrated William of Orange, and belongs to the noted Gordon Castle Lustre tribe. The fourteen heifers are a smooth, even, uniform lot, and belong to the following popular Scotch families: Brawith Buds, Minas, Beauties, Lady Annies, Lady Marys, Mysies, Maudes, Minervas, and Matildas. Six young calves go with this lot, all imported in dam. To Mr. W. J. Bartow, Saginaw, Mich., three choice heifers and young bull calf—*Mara 18th* and *Roan Beauty*, both got by Indian Statesman, and *Gloxina 9th*, by General, dam Gloxina 6th, by Earl of Moray, the sire of the great show bull, Nominee. To Mr. John McAvoy, Ready, Saginaw Co., Mich., the yearling bull, *Golden Eagle*, by Nelson, he by Strathallan Lad, a prizewinner at Toronto, and three excellent dairy Shorthorn cows with two young calves by their sides; the paying kind. To Mr. E. E. Ellison, of Layton, Davis Co., Utah, near Salt Lake City, the grand young 5-months calf, *Scottish Statesman*, by Indian Statesman; *Aggie Ury*, a choice 3-year-old red heifer of the favorite old family bred at Kinellar, and four good Scotch-topped yearling and 2-year-old heifers. This makes 70 head of Shorthorns sold from this herd since September, but we still have a herd of over 60, and can give good bargains yet.

GOSSIP.

In a recent letter received from Messrs. F. Bonnycastle & Sons, Campbellford, they state: "Our Cotswold lambs are coming uniform and strong, having lots of the right kind of wool, and if the whole crop comes in the same proportion, it will be above the average. We are receiving many inquiries for Shorthorns, especially females, and will not have any trouble in disposing of all we care to spare. Calves are coming from the Miss Ramsden bull which we purchased last year from Mr. Brodie, and from what we have seen he is going to suit our herd well."

Mr. David Duncan, Don P. O. (near Toronto), maintains a strong herd of high-class Jersey cattle, including about 30 cows of much merit and of the favorite St. Lambert, Combination and other superior families, among which are half a score daughters of his richly-bred and fine-quality Combination bull, Costa Rica's Son, who carries 75 per cent. of the blood of the World's Fair sweepstakes cow, Merry Maiden, and whose dam, Costa Rica, has a record of 21 lbs. 6¼ ozs. of butter in seven days, and 90 lbs. 11¼ ozs. in 31 days. Costa Rica's Son is being followed in the herd by an imported Island-bred grandson of the famous Golden Lad, a solid gray-fawn bull, a year old last September. A few choice young females of the herd are offered for sale.

TORONTO SHOW PRIZE LIST.

It has been decided to print the names of breeders in Toronto Industrial live stock catalogue, and that all certificates must be produced to the judges, if required, at the time of judging. The words "or be eligible for registration" were struck out, and animals henceforth will have to be registered. The rule providing that "in case of grade animals pedigrees must be given to show that they are at least half-bred" was struck out. The rule requiring cows to be milked dry before judging was made to read that they should be *milked dry between the hours of 6 and 8 o'clock the evening before.* A clause was inserted requesting judges not to refer to catalogue when engaged in judging. Mr. Hill announces that the Dominion Shorthorn Association had again determined to add $750 to the prize list. The class for Devons was struck out for lack of competition. Guernsey prizes are to be increased to same as Jersey, if four or more herds compete. Pony tests will henceforth have to be to pony cart or surrey. A class for saddle horses and hunters was added, to jump over hurdles 3 feet 6 inches in height, to carry 160 pounds, and to be ridden by owners, who must not be dealers or professional riders. Three prizes will be given; $90 added for Shire stallion and four of his progeny not over 2 years old. Mr. George Pepper's resignation as superintendent of the horse ring was accepted, he being a large exhibitor. A few minor changes were made in the prize list, and $25 given by the Canadian Horse Breeders' Association set down for the roadsters. In class 45 (sheep), Merinos was struck out entirely for want of competition, exhibitors having been notified last year that this would be done if entries did not increase. The prizes for export bacon hogs introduced last year are continued. The Wm. Davies Co. give $100 for pen suitable for export bacon. As a matter of fact, the entries last year were so large that it was thought the prize list must be too good to need any material change.

H. GEORGE & SONS' TAMWORTH, CHESTER AND YORKSHIRE SWINE AT CRAMPTON.

On a recent call, we found the above-named firm in their usual activity along the line of pig-production, with their usual number of brood sows in each class, and the addition of a selection of choice Yorkshires, which they added to their stock last fall. The three females of the last-named breed are members of the Marion tribe with a top cross of Dominion blood and tracing direct to the famous Holywell ancestry, a combination of breeding which has not only done credit to their producers and developers in the showyards, but which is largely responsible for placing the breed in the prominent and important position which they now hold. These sows, we found, were sired by the imported boar, Oak Lodge Hotspur, and of him and his progeny we can safely state that he promises to become one of the first sires in the breed in this country, combining individual merit and high-class quality in his stock, while in the young boar which Mr. George selected to mate with the sows we found a choice individual, carrying the blood of some noted strains in his veins, his sire, Robin H. 1678, having established a reputation as a producer of typical and show-yard-winning stock, and combining in his dam the blood of the famous Mayflower tribe, tracing through Madame to Holywell Wonder. In the face of such facts, coupled with Mr. George's personal experience and facilities, we can only predict much success with his gilt-edge foundation stock in this new breed.

In visiting the Chester pens, we found upwards of a dozen brood sows to farrow this spring, in their usual form, which were mated to boars having a variety of breeding.

Rather more Tamworth sows were bred than usual, as the firm readily foresaw the sudden awakening that must take place in the hog trade in the event of a shortage in bacon stock in the country, which seems inevitable. The firm are in a strong position to meet the coming demand, and, as has been their aim, they still pursue the course of filling orders promptly.

GOSSIP.

J. M. Gardhouse, Highfield, Ont., writes: "Horses, cattle and sheep have all wintered well. Sales have been good and prices encouraging. Our Leicesters last season were sent to Nova Scotia, Quebec, Manitoba, United States, and most all over Ontario. Our crop of lambs is very promising both in numbers and quality. In Shorthorns, some of the recent sales are: To Mr. J. T. Gibson, Denfield, Ont., (imp.) Prime Minister, bred by Wm. Duthie. To Mr. John Campbell, Woodville, Ont., Minister, sire Prime Minister, dam Fairy Fame, a half-sister to St. Valentine. To Mr. W. E. Robinson, Missouri, Violet of Highfield and Fairy Flower, sired by the Missie bull, Scottish Pride, whose dams were by Imp. Guardsman, and bred to Prime Minister; Wimple of Highfield, by Prime Minister, grandam Imp. Wimple; Claret of Highfield, grandam Imp. Clete, sire Prime Minister; Crimson Floss, sire Prime Minister, dam Crimson Flower, one of the old Crimson Flowers that has produced so many good ones. These were five choicely bred heifers, and should do Mr. Robinson good. Mr. W. J. Mooney, Iverness, Que., got a very promising Scotch calf of the Clementine family, and several others have been sent to Manitoba and Ontario. Imported Darnley, now 18 years old, is as fresh as a 10-year and his stock is the right kind. Our new purchase, King of Clydes, imp. by Mr. Dalgety, a Clyde rising 3 years old, gives great promise. He is one of the big ones with good legs and lots of quality. He now weighs over 1,900 lbs.

AYRSHIRE HERD BOOK—THE ROSS PEDIGREES REINSTATED.

At the annual meeting of the Canadian Ayrshire Association, held in Toronto, February 6, 1900, "the Revising Committee was pleased to be able to report that the pedigrees that have been suspended so long, commonly known as the Ross cows, Bonnie Dundee, Lady of the Lake and Prince Arthur pedigrees, with all their crosses, have been accepted both in the American Herd Book and in our own. They can now all be reinstated at a charge of $1.00 per pedigree for those that were recorded before amalgamation. This charge is made by the Finance Committee on account of the expense incurred in investigation and the registration of Bonnie Dundee in the American Herd Book. The charge for recording their progeny will be the ordinary rates."

Officers Elected for 1900.—President, A. Kains, Byron; First Vice-President, W. F. Stephen, Trout River; Vice-President (Ontario), J. C. Smith, Hintonburg; Vice-President (Que.), Hon. Wm. Owens, Montreal; Vice-President (Manitoba), George Steel, Glenboro; Vice-President (Assiniboia), C. W. Peterson, Regina; Vice-President (British Columbia), — Mackie, Eburne; Vice-President (P. E. Island), F. G. Bovyer, Georgetown; Vice-President (Nova Scotia), C. A. Archibald, Truro; Vice-President (New Brunswick), M. H. Parlee, Sussex. Directors (Ontario)—Wm. Stewart, Jr., Menie; W. W. Ballantyne, Stratford; A. Kains, Byron; R. S. Brooks, Brantford; J. C. Smith, Hintonburg; A. Hume, Burnbrae; F. W. Hodson, Ottawa. Directors (Quebec)—Robt. Ness, Howick; John Morrin, Belle Riviere; Nap. Lachapelle, St. Paul l'Hermite; T. D. McCallum, Danville; W. F. Stephen, Trout River; A. Drummond, Petite Cote; R. Hunter, Maxville, Ont.

NOTICES.

Ontario Veterinary College Graduates.—The closing exercises of the Ontario Veterinary College, Toronto, occurred on March 26th, when about fifty graduates received their diplomas. The Gold Medalist was Mr. C. D. McGilvray, of Binscarth, Man. Among the graduates were men from England, Jamaica, Canadian Northwest, and many States of the American Union.

Peterboro Spray Pump.—In this issue will be noticed the new advertisement of Mr. G. Walter Green, of Peterboro, Ont., in which he sets forward the special advantages of his general spraying outfit, which is adapted for all kinds of spraying. From the conveniently-equipped outfit the machine will readily commend itself to the practical reader. Mr. Green also manufactures a line of windmills, hydraulic rams and syphons, all of which are finding a rapid introduction into this country. From Mr. Green's strict personal attention and ingenuity, we consider him the type of man to forge his way to the front in the near future. See his advertisement and send for his circulars.

Wild Goose Seed Wheat.—Of all the varieties of spring wheat now sown in Central and Eastern Canada, there will probably be a greater average of Wild Goose put in this year than of all other sorts combined, because it is a good yielder of salable crop. For nine years it lead all other varieties in test plots at the Guelph Experimental Farm, in grain as well as in straw. It appears to be practically rust proof, and weevil does it very little damage. For years the growing of this variety was discouraged by the low price paid for the crop—some 10 cents per bushel less that fall and other sorts of spring wheat—but of late years the price paid for Wild Goose has pulled up, and in this issue Messrs. Hunt Bros., of London, Ont., offer pure, clean seed for sale and agree to purchase the resulting crop at a price above that of fall wheat. See their advertisement.

PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

Messrs. Innis & Horton, of Clinton, Ont., have recently purchased the famous trotting stallion, Texas Jack, from Mr. L. Wigle, Leamington, Ont. He is a horse of wonderful speed and a roadster-producing sire that has seldom, if ever, been surpassed. He is nicely settled in his new home.

George Rice, Currie's Crossing, Ont., reports the sale of the following Holstein cattle: The 2-year-old bull advertised in last issue of the ADVOCATE, to Mr. J. W. VanDyck, Conway, Ont. Mr. Abram Rowand secured a fine bull calf from the great sire, Homestead Albine DeKol; and to Mr. Andrew Boa, Lachute, Quebec, was shipped a fine heifer calf from the same sire; also a 5-month-old bull calf, whose dam is Iosco Pride. Her udder measures 5 ft. 8 in. around when fresh, and she is full sister to Woodland Iosco, that won 2nd in the London test after being in milk 75 days. She is now in the Brookbank herd, along with many other public-test winners. Mr. Thomas B. Carlaw, Warkworth, Ont., ordered a fine bull to head his herd. Enquiries are pouring in from all over. Far-off Newfoundland has just been heard from.

On page 243 of this issue Jas. I. Davidson & Son offer for sale the 4-year-old Clydesdale stallion, Tofty Superior [2252], which they describe as a large, smooth horse, with short legs, heavy body, and good action; was exhibited seven times and never beaten. His sire, Tofty (imp.) 2123 (9452), was a prizewinner in every competition at the leading shows in Canada, including gold medal at Ottawa. His dam, Kate Hill 2nd, was the winner of twelve first prizes, several sweepstakes, and gold medal, winning sweepstakes for best mare and two of her progeny at the Toronto Industrial, progeny being Tofty Superior and full brother, Pride of Balsam. Her dam, (imp) Kate Hill, was a prizewinner whenever shown; a superior mare, her sire being young Surprise (1034), who was awarded 3rd prize at the Agricultural Society Show at Glasgow. Tofty Superior's grandsire, Lewie Gordon, was the winner of twelve 1st prizes. He was also awarded the 1st prize at the Industrial, Toronto, as the sire of the best 5 Clydesdales of either sex under 3 years old. Intending purchasers will not be disappointed when they see him.

THE BIRMINGHAM SHORTHORN SHOW AND SALE.

At the English show and sale of Shorthorn bulls at Birmingham, March 7th, the first day's offerings made prices far in advance of those made at the Scotch spring sales, 175 bulls averaging £46, and Mr. R. H. Dyke's Duke of Barrington 53rd, a Bates-bred bull, with a dash of Scotch through Western Lad, making the great price of 510 guineas, or $2,625. He was the first-prize winner in the class for bulls over 10 and not exceeding 20 months, known as the £50 class on account of the handsome prize money offered by the Society. The purchaser was Mr. Miller, for South America. Mr. J. Gowling's Cock of the North, first prize in class over 15 and under 18 months, was the second highest priced bull, going at 260 guineas to Mr. Miller. Mr. J. W. Barnes' Masterpiece, the fifth-prize winner in the class over 21 months and under 30 months, was the next highest priced bull, going at 250 guineas to Mr. Maclennan, for Buenos Ayres. Lord Lovat's second-prize calf in the young class, Encombe, went to Mr. Miller at 210 guineas. Nine others brought from 100 guineas to 205 guineas each.

MR. WM. WYLIE'S AYRSHIRES.

Prominent among the best herds of Ayrshires in the Province is that of Mr. Wm. Wylie, of Howick, P. Q. This herd stood well to the front in the leading exhibitions—Toronto, London, and Ottawa—last season (1899), having won in all 37 prizes, 17 of them being firsts, and also won first and diploma for best herd of Ayrshires at the Western Fair, London, and first and gold medal for herd at Central Canada Fair, Ottawa; also sweepstakes for best female at Ottawa, and silver medal for best bull of any age at Toronto. The herd is of a uniform type and style, specially bred for heavy milkers and stylish animals, with deep bodies and good constitution, the right sort for the dairy, a fact which proves itself from the large quantities of milk that is shipped daily by rail from the farm at Howick to Montreal. The imported heifer, White Rose of Langside, dropped a heifer calf in the latter end of December, and is doing exceedingly well. She was never shown in Canada, but was a prizewinner as a yearling in Scotland. Lady Kelpie No. "7698" also dropped a heifer calf a few days ago. This is one of the best cows in the herd; she has been a prizewinner wherever shown. It was the intention to show her in the herd last fall, but her not proving to be in calf at the right time, another was shown in her place. She has a perfect-shaped udder and good teats, and is giving over 40 lbs. of milk per day and only about a week calved, and not being fed very high for fear of milk fever. She has never been shown since she was a 2-year-old, and she then stood second at Montreal, first at Sherbrooke, and first at Ottawa in a very strong competition. The imported 3-year-old heifer, Polly of Burnbrae, has improved wonderfully since going into winter feeding. She is due to calve in May next to the young imported bull, Duke of Clarence of Barcheskie, the sweepstakes winner at Ottawa last September. The herd is in prime condition, numbers about 30 head, and by competent judges is pronounced to be one of the most even lots to be found in the Province. The cows are all in calf to the imported bulls, Scotland's Glory and Duke of Clarence of Barcheskie. Anyone requiring new blood to improve their stock would do well to inspect this herd. The young heifer calf of Nellie Osborne 2nd is a great favorite. She is called Nellie Osborne 4th, and is most likely to keep up the reputation of her dam and grandam. Among the sales that have recently been made are: One yearling bull to Mr. D. Cook, Bainsville, Ont.; one bull calf to Messrs. E. Marsh & Sons, Gladstone, Ont.; one bull calf to Mr. Charles Moe, Ormstown, P. Q., and the imported bull calf, Stanley of Carston, to Mr. John Howden, St. Louis, P. Q., and also the imported heifer calf, Beauty of Langside, to Mr. John Doig, of Lachute, P. Q. There are still two young bull calves left, about 8 months old, and some choice heifer calves and yearlings, both imported and home-bred, and a few A 1 cows for sale at reasonable prices.

GOSSIP.

The 1st volume of the Herd Book of Large Black pigs has recently been issued under the supervision of the council of the Large Black Pig Society of Great Britain, of which Mr. Ernest Prentice, 61 Oxford St., Ipswich, is secretary and editor. It is a creditable volume, 106 pages, containing the pedigrees of 632 animals.

Mr. A. J. Watson, Castlederg, Ont., writes:—"Shorthorns and Cotswolds at Ashton Front View are looking fine at present. I have some grand young bulls for sale now. Show sheep are in better fit this year than I ever saw them at the same time of year. Sales of all kinds of stock have been good with me this winter and spring, and I expect it will be much better, as there are plenty of breeders looking after show stock."

Mr. John Gardhouse, Highfield, Ont., writes:—"I have sold during the last two weeks the following Shorthorns: Bull, Crusader =32140=, by Guardsman =18956= (imp.), to Mr. John Dempsey, Fairview; Bulger Boy =32141=, by Prime Minister (imp.) =15280=, to Mr. Wm. G. Moffat, Teeswater; the two heifers, Flower Girl, by Scottish Pride (imp.), and Selina, by Guardsman (imp.), to J. M. Gardhouse, Highfield; the bull, Prime Eclipse, by Prime Minister, to Wm. Ramsay & Son, Eden Mills; the bull calf, Highfield Earl, by Prime Minister, to Jas. H. Kendrick, Lyndhurst. I have on hand yet the young bull, Prime King =32142=, twelve months old, by Prime Minister (imp.) =15280=, dam by Guardsman (imp.) =18956=, which I think is going to be the best bull I had this year; also a few heifers."

MESSRS. T. LLOYD JONES & SONS' GALLOWAYS AND SHROPSHIRES.

In another column may be found the new advertisement of Messrs. T. Lloyd Jones & Sons, in which they offer for sale a choice bunch of Galloway cattle, including their stock bull, College Gambler, and two yearlings fit for service. The firm carry upwards of 40 head of pure-breds and grades, and have been successful in the showring at leading exhibitions. The stock bull, College Gambler, has never been defeated in his class, while the young bulls are thick-fleshed, thrifty animals, well coated and good handlers. The firm brought out the 2-year-old half-bred steer last winter which won the 2nd at the Fat Stock Show at London, and received the following report from the parties who slaughtered him: Live weight, 1,510 lbs.; dressed 1,005 lbs. of beef, 70 lbs. of tallow, and 94 lbs. hide. The firm state that he was 2 years and 3 months old, and add that the public will never know the value of the breed except through the block test. A good flock of Shropshire sheep was founded upon selections made from the best English flocks, on which was employed imported rams. They state that they have a few choice shearling ewes and rams to offer at present. See the advertisement.

A SCOTCH SHORTHORN FOR IRELAND.

The Rev. Mr. Smith, of Boyle, Connaught, has purchased the grand Sittyton bull, Count Arthur, from Mr. Joliffe, Stratford-on-Avon. This bull was used for two seasons by Mr. Duthie at Collynie, where he was greatly admired, and where his bull calves made an average of £71 apiece. He comes of the grand Victoria family, his dam, Victoria 85th, being one of the best cows at Bapton Manor. This cow was bred at Sittyton, and she won second prize at the Great Yorkshire Show in the family class with her daughter, Countess Victoria, her sons, Count Valiant and Count Arthur, all of which were sired by the famous Count Lavender, winner of fifty-three 1st and championship prizes. Count Arthur is in full "working order," as he has not been exhibited since he was a year old, yet he girths 8 feet 8 inches, and is as straight on the back as a calf. He is almost full brother to the famous Count Victor, who carried all before him at the best shows in England, including 1sts at two Royal shows. Mr. Jolliffe writes that he is one of the best bulls in England, and has been used with most satisfactory results. He has left beautiful calves, full of hair and quality, and good colors. A sire with such credentials should prove a great acquisition to Shorthorn interests in the West of Ireland.

P. R. HOOVER & SONS' TAMWORTHS AND BERKSHIRES.

The result of the attention which the firm of Hoover & Sons, at Green River, in Ontario Co., Ont., has given to the production of typical Tamworth swine is showing up very advantageously in each succeeding generation of hogs. In their earlier experience with the breed, their chief aim was to breed nothing but vigorous, well-matured sows, and avoid extravagant feeding and unnecessary confinement, together with foundation stock having the most approved pedigrees, judicious matings, and personal carefulness. Half a dozen sows were reserved for spring farrowing to the services of the 2-year-old boar, O. A. C. 419, by Royal Prince (bred by A. C. Hallman), and out of Peggy 454. O. A. C. 419 is a boar held in high esteem by his owners, and in him we found an animal full of Tamworth character, with enough masculine individuality to make him an impressive sire, carrying all the bone desirable, possessing a splendid back and deep sides, which he appears to transmit to his progeny with much certainty. We found, upon visiting the firm early in March, a good supply of young things of either sex, varying in age from 4 weeks to as many months, and as their dams carry the blood of the best strains in the breed, we can see little risk in laying a foundation from such a herd when we consider their freedom from inbreeding and its evil consequences. During our visit we were shown the imported Berkshire sow, Ida 4521, by Manor Lad (5586); dam Lady Pippin (5494), a sow imported from her breeder, Mr. J. Lawrence, Stallpits, Shrivanham, England, when a year old, and which has produced litters annually since her migration to this country. She is a sow of splendid quality and true Berkshire type of the bacon sort, and as she is now in her prime, and has a smart litter at her foot, we would consider her worthy of the attention of parties requiring this kind of stock, and as the firm has her for sale, an early investigation will be advisable. Among her litter we saw some excellent boars and sows, possessing the length and quality so much in demand. See the firm's offerings.

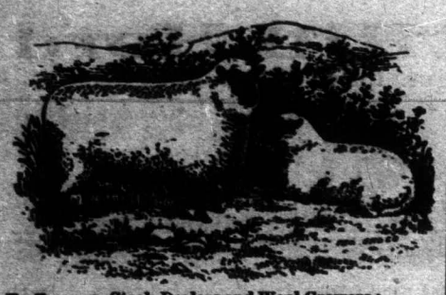
GOSSIP.

Messrs. C. J. Gilroy & Son, Glen Buell, Ont., write:—"The reputation won by the Maple Glen stock farm Holsteins has placed them among the foremost ranks of up-to-date breeders, and sales the past few weeks have been quite satisfactory. Mr. Ransom Brown and Gordon McLean, of Athens, selected the richly-bred young cow, Witzyde Sjut's Queen, winner of a 1st and 2nd prize at the great Toronto Industrial. She gave us as a 2-year-old 46¼ lbs. in 1 day, and over 8,000 lbs. in season. They also selected the young bull, Inka Sylvia 2nd's DeKol Prince, whose dam gave us as high as 55 lbs. per day as a two-year-old, 8,000 lbs. in 10 months' time. This calf is grandson of Inka Sylvia, winner of 1st test, Ottawa, last fall; 2nd Toronto, after just recovering from severe attack of milk fever. She is daughter of Carmen Sylvia, a noted test winner also. This is the kind to breed from. Mr. C. M. Keeler also paid us his third visit for purchasing, this time taking away a grand young cow, half-sister of Carmen Sylvia, also another with calf at foot, closely related to his Rideau Gretqui, a test cow also. Mr. John Stewart, of Delta, favored us with a second call for purchase. He got two choice females in calf, one is of the famous Lutskie family. Mr. A. Galbraith, Kenmore, Ont., selected the bull calf from Witzyde Sjut's Queen, sired by our undefeated prize bull of last year, Carmen Sylvia's Prince. Individually he took first, headed the sweepstake aged herd at Toronto, the 2nd breeders' herd at Toronto last year, and 1st breeders' herd the previous year. His get have been first winners at Toronto, and were also in sweepstake young herd at Ottawa last fall. Surely this is reputation—gilt edge. The Roebuck Dairy Syndicate also took one of his sons to improve their dairy herd. They selected Bessie's Sylvia Prince from a cow giving 12,000 lbs. milk per season. A few young cows in calf to Carmen Sylvia's Prince, due in July and August, are open for sale. One is of the Teake family, a prizewinner, and a dairy test winner as well."

MR. H. J. DAVIS' SHORTHORN CATTLE, YORKSHIRE AND BERKSHIRE SWINE, NEAR WOODSTOCK, ONT.

It has been our pleasant lot to pay Mr. H. J. Davis several visits in business and other capacities, and each time to look over his herds of pure-bred stock at different seasons, and although we have never found him lacking in enthusiasm regarding his ideal types, we think we have never called upon him when enthusiasm reached a higher pitch than on the occasion of our last visit; and although he sees brilliant prospects ahead, he is not carried away by any boom excitement, but progressing in his old-time substantial methods. We found several stalls occupied by pure-bred Shorthorns that have heretofore contained grades, and among the new arrivals our attention was especially attracted by the useful cow, Rosedale of St. Mary's, by Baron Camperdown (imp.), and out of Rosedale 13th, by Enterprise, and in her we found a big, useful type of cow, rich in Shorthorn character, and combining dairying qualities in a marked degree. Her last year's progeny being on the farm, we were justified in passing such judgment upon her, for in him we found a useful young bull by Auditor 24280, well-proportioned and evenly-developed, with a great wealth of natural flesh, deep, well-sprung ribs, and covered by an excellent coat of hair. He is for sale, and ready for service at any time. Bella Languish and her heifer calf are also members of a vigorous, prolific tribe, the foundation of which were among those which commanded sensational figures in bygone days in England, and during their development they have been largely influenced in flesh production by the use of Scotch-bred bulls, the matron being a daughter of Victor 10th. Another very worthy fellow we found in the red bull calf tracing to Violet of Greenwood, a cow purchased from Mr. Arthur Johnston some years ago. This fellow is worthy of the attention of parties requiring the services of a sire to head a pure-bred herd. It will be remembered that Mr. Davis had the honor of winning the 3rd prize with a Shorthorn cow in the dairy test at London last December, and in answer to our enquiries we learned that she is a member of the Mistletoe tribe and was sired by the Cruickshank bull, Baron Lenton (imp.), and even her wonderful showing at that test was not equal to her ability as a dairy cow. She had very recently calved, and her udder had not regained its normal proportions, yet she yielded 12 lbs. more milk throughout the entire test than any cow of her breed. She has a nice bull calf at foot, which will grow into a desirable fellow. The Buchan tribe is also represented here by a useful female, carrying some choice strains in her pedigree. The stock bull, Wild Tom 27215, by Crown Jewel 22050, and out of Scottish Girl, by Village Hero, and tracing to Scottish Maid, by Perfection, is an animal of excellent Shorthorn type and masculine character, with sufficient bone, and covered by a fine velvety skin, and we think will mate well on the type of cows in Mr. Davis' herd.

The Yorkshire pens contain seven brood sows, either in pig or having recently farrowed. Among the latest additions we saw the grand sow, Oak Lodge Buttercup 10th, by Oak Lodge Seaman 4th (who traces to the famous Cinderella strain, so famous in showyard circles), and out of O. L. Buttercup 4th, which traces direct to Mr. Sander Spencer's production. She was shown extensively and did much credit to herself and owner by landing 1st in Toronto in 1898 and 3rd in 1899, with 1st at Ottawa and 2nd at London in the latter year. When purchased she was in pig to Oak Lodge Conqueror, to which she raised a splendid litter in October, one boar being held for sale at the present time, together with about a dozen others approaching the serviceable age. She is now being bred to O. L. British Hero 2nd, the young boar which Mr. Brethour imported last year in dam; by Metchlay Hero 2nd, Vol. XV. E. H. B., and out of Metchlay Spot 2nd (imp.), an animal which has received a very liberal patronage in Mr. Davis' hands, and whose stock is coming strong and uniform as to length, quality and quantity of bone. Mr. Davis certainly has some choice young things from British Hero, which must add much to the value of the herd. The Berkshire herd is also receiving its share of attention, and is headed by Klondyke Brave, a pig whose ancestry carries the blood of Royal Show-yard winners. He is a very smooth pig, and produces very attractive, up-to-date offspring in type. Watch Mr. Davis' offerings.



To Farmers, Stock Dealers and Wool Growers:

For Sheep, Cattle, and Horses.

Liecestershire Tick and Vermin Destroyer

It effectually destorys Ticks, Lice, Worms or Grub, to which sheep, horses and cattle are subject, and enables the animals to thrive. It will be found far superior to other preparations used for the similar purpose. The proprietors will guarantee perfect success when used according to directions, as will be found on each box. It prevents scurf and scab, and renders the wool bright and clear. It is put up in tin boxes, price 30 cents each. One box is sufficient for twenty ordinary-sized sheep. It only requires to be tried to prove itself all that is claimed for it. Sold by druggists and grocers. Manufactured by **G. C. BRIGGS & SON, 31 King Street West, Hamilton, Ont.** o

Bissell's Steel Roller.

STEEL DRUMS, well riveted.
Felloes in all the ends.
Heavy wrought spokes.
Double nuts on every spoke.
Strong axle, 2 inches in diameter.
Angle steel frame with weight box.
Double truss rods under the frame.
Draft bracket under the pole.
Runs light and turns easy.
ROLLER BEARINGS.
MORE NEW IMPROVEMENTS THAN ANY OTHER LAND ROLLER.
Address,

T. E. BISSELL, FERGUS, ONT.

BARRED PLYMOUTH ROCKS.

Eggs for hatching from well-barred and vigorous matings, $1.00 per 13, $1.75 per 26, $2.50 per 39. A limited number of breeders for sale reasonably. o **L. & R. W. MAIN, ELORA, ONT.**

Parkhill Berkshire Herd and Poultry Yards

Offer a choice lot of stock for sale. Poultry: Eggs, $1.25 per 13, or 26 for $2, from stock equal to the best—L. Brahmas, B. Langshans, W. and B. Rocks, W. and S. L. Wyandottes, W. and Brown Leghorns, Black Minorcas, S. S. and B. Hamburgs; Pekin and Rouen duck eggs, $1.50 per 11; Toulouse and Emden geese eggs, $2 per 6; M. B. turkey eggs, $2 per 9. o **D. A. GRAHAM, Parkhill, Ont.**

BARRED PLYMOUTH ROCKS. Haldimand Co.

WE have for sale good breeding cockerels with straight narrow barring and good even color. Also a few Pekin ducks.
H. GEE & SONS, Fisherville, Ont.

EGGS From Plymouth Rocks, Wyandottes, Leghorns, Brahmas, Cochins, Langshans, B. Minorcas, Spanish, S. Dorkings, Houdans, B. R. Pile and Indian Game, Hamburgs, Red Caps, Bantams, Pekin, Rouen, Aylesbury ducks, at $1 per 13. **R. J. & A. Laurie, Wolverton, Ont.** -o

EGGS, EGGS Mammoth Bronze Turkeys, Barred and White P. Rocks. Have also for sale young Chester White Swine. **W. E. Wright,** -o Glanworth, Ont.

Sprucedale Poultry Yards. Eggs for hatching, ½ value this season. Barred Plymouth Rocks, White Plymouth Rocks, and White Wyandottes. Choice exhibition-bred stock. $1.00 per setting. Some excellent male birds to sell. -o *A. HILL, Wyoming, Ont.*

Bronze, White Holland and Narragansett TURKEYS.

Also Pekin ducks and Collie pups. -o

ANDREW ELLIOT, POND MILLS, ONT.

BARRED PLYMOUTH ROCKS.

$50 silver cup and gold medal winners at the "Ontario," Peterboro, 1900. More prizes than any four breeders at Toronto, London and Ottawa Fairs, 1899. **Blood will tell.**

EGGS $2.00 and $3.00 per 15. $3.50 and $5.00 per 30.

ASKIN POULTRY YARDS, London.
GEO. W. MILLER, PROP.

BARRED PLYMOUTH ROCKS—Eggs from my pen of pure-bred prizewinning stock, at $1 per setting of 13. Order early. Address— o
W. C. LANDSBOROUGH, Clinton P. O., Ont.

KNAPP STRAIN S. C. WHITE LEGHORNS.

The greatest egg producers. Eggs from a fine pen, headed by a first-prize cockerel mated with prize females, at $1.00 per setting. om
W. O. BURGESS, Queenston, Ontario.

SEEDS for 25c.

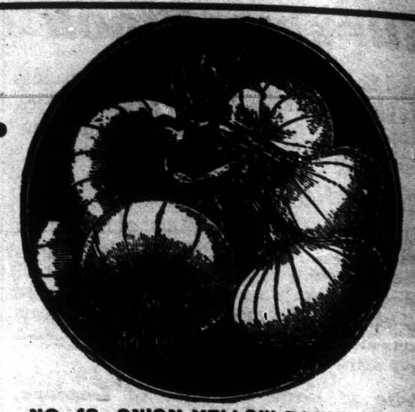
Any 12 Varieties—Regular 5 cent Packages—Money Refunded if not Satisfactory.

VEGETABLES.
(Order by Number.)

1—Beet, Eclipse, Round.
2—Beet, Egyptian, Flat-round.
3—Cabbage, Winningstadt.
4—Cabbage, Fottler's Brunswick.
5—Carrot, Half-long, Scarlet.
6—Carrot, Oxheart, or Guerande.
7—Cucumber, Chicago Pickling.
8—Cucumber, Long Green.
9—Celery, Golden Self-Blanching.
10—Herbs, Sage.
11—Herbs, Savory.
12—Herbs, Marjoram.
13—Lettuce, Nonpareil (Cabbage).
14—Lettuce, Denver Market (Curled).
15—Musk Melon, Extra Early.
16—Water Melon, Early Canada.
17—Onion, Large Red, Wethersfield.
18—Onion, Yellow Globe, Danvers.
19—Parsnip, Hollow Crown.
20—Radish, French Breakfast.
21—Radish, Rosy Gem, White Tipped.
22—Squash, Hubbard.
23—Tomato, Extra Early Atlantic
24—Tomato, Dwarf Champion.

FLOWERS.

25—Asters, Mixed.
26—Mignonette, Sweet.
27—Pansy, Mixed.
28—Petunia, Mixed.
29—Nasturtiums, Tall Mixed.
30—Sweet Peas, Fine Mixed.
31—Wild Flower, Garden Mixed.



NO. 18—ONION YELLOW DANVERS.

FREE Providing this coupon is CUT OUT and sent to us with an order for 12 packets, we will include 1 packet New Giant Yellow Sweet Sultan—Price 25c—FREE OF CHARGE TO "ADVOCATE" READERS.

WM. RENNIE, TORONTO. BY MAIL, POSTPAID. ORDER TO-DAY.

WINONA NURSERY CO.

Offers for Spring of 1900

A full line of stock, both fruit and ornamental, at very moderate prices. No agents' commission to pay.

Send for price list and catalogue. Dealers will find it to their interest to correspond at once with

J. W. SMITH,
Manager,
Winona, -o Ontario.

Built for Business!

That's the idea. There's nothing fancy; nothing foolish about them; just straight, practical, lasting, honest goods. The

CYPHERS . . INCUBATORS

are positively warranted to last **TEN YEARS**, without repairs, and are guaranteed to **OUT-HATCH**, during three trials, any other make of incubator on the market—bar none. **THIS, OR YOUR MONEY BACK.** Used exclusively at Experimental Farms, Guelph and Ottawa; also six American Experimental Stations. Daniels, the universal provider in the Poultry Supply business, has the sole agency for the Cyphers Incubators and Brooders for Canada. Our list of Poultry Supplies are too numerous to mention here, but just drop us a line and state what you require. We handle nothing but the best. Satisfaction every time, or money refunded. Mention ADVOCATE. o
C. J. Daniels, 221 River St., Toronto, Ont.

DES MOINES INCUBATOR CO

The BEST and the CHEAPEST.

95 Per Cent. Hatches are often reported by those who use these Incubators. One reason for this record is absolute uniformity of temperature in egg chamber; correct instructions for operating; has fireproof lamp. A great mistake it would be to purchase an Incubator or Brooder without first getting a copy of our 148-page catalogue. Send 3 cents for illustrated catalogue of Incubator, Brooder, Poultry and Poultry Supplies.

"THE POULTER'S GUIDE" (new edition) 15 cents by mail.

O. ROLLAND,
373 St. Paul St., MONTREAL.
Sole Agent for the Dominion. -om

Safety Incubators & Brooders

Are the best, most reliable, and cheapest machines you can buy. Fireproof heaters, fireproof lamps, absolutely self-regulating, supply their own moisture, and are fully guaranteed. For circular, etc., address the manufacturer. om

J. E. MEYER, KOSSUTH, ONT.

EGGS FOR HATCHING.

From Golden and Silver Wyandottes, Barred Rocks, and Pekin ducks, $1 per setting. Bronze turkey eggs, 25c. each or $3 per 13. Peafowl for sale. o
James Lenton, Park Farm, Oshawa, Ont.

PLEASE MENTION FARMER'S ADVOCATE.

Green's Peterboro' Spray Pump

THE FARMERS AND FRUIT-GROWERS' MODEL OUTFIT

FOR spraying orchards, berry bushes, garden vegetables, field crops, infected cattle, poultry houses, and disinfecting purposes. Also for painting barns, fences, rough surfaces. It has the best agitator made and the longest and most powerful stroke.

Price, complete, with barrel, $10.

G. Walter Green,
Manufacturer.
PUMP WORKS:
Macdonell Street: : PETERBOROUGH, ONT.

NEW 20TH CENTURY

Styles, Capacities, Prices, &c.

JANUARY 1ST, 1900.

September 1st, 1899, marked the introduction of the Improved 20th Century "Baby" or "Dairy" sizes and styles of "Alpha" De Laval Cream Separators. These improvements denote another advance in centrifugal cream separator construction and efficiency. Great as has been the universally conceded superiority of the De Laval machines heretofore, the standard is now raised still higher. As near practical perfection as have been the De Laval Separators the past year, the latest improvements make them still better, until it is difficult to-day to perceive the possibilities of furthur improvement.

New 20th Century Styles and Sizes.

The De Laval "Baby" or Dairy Cream Separators are now made in six different sizes and styles. All are of the improved "Alpha" or "Disc" construction. The "Humming-Bird" is solely a hand machine. The Dairy Turbine is solely a steam-motor machine. All of the other sizes are capable of convenient use either by hand or power.

SIZES, CAPACITIES, AND PRICES.

SIZE.	Capacity, Lbs. per Hour.	Equal to Lbs. of Any Other Separator.	Price.
Humming-Bird - - -	225	300	$ 65.00
No. 1 Iron Stool - -	325	400	100.00
No. 2 Iron Stool - - -	450	550	125.00
No. 2 High Frame - -	450	550	125.00
No. 3 High Frame - - -	850	1000	200.00
Dairy Turbine - - -	850	1000	225.00

☞ On demand we will send a fine booklet: "KEEPING COWS FOR PROFIT."

GENERAL AGENTS:

The Canadian Dairy Supply Co.,

-om **327 Commissioners St., MONTREAL.**

GOSSIP.

Montreal is to have a horse show on Thursday, Friday and Saturday, May 3, 4 and 5. The show will be in the Arena Rink, under the auspices of the Montreal Hunt. An advisory committee of Hunt Club members will be named to act in conjunction with the Arena.

SNELGROVE BERKSHIRES AND COTSWOLDS.

Snell & Lyons, Snelgrove, Ont., in ordering a change in their advertisement, write that they have a grand lot of young sows for sale, due to farrow in April and May, and are ready to book orders for pairs not akin of either fall or spring litters. Cotswold yearling rams and ewes are also offered for sale. The breeding and quality of the Snelgrove herds and flocks rank among the best on the continent, being long established and kept well up to date.

Mr. W. G. Pettit, of Freeman, Ont., having sold over 70 head of Shorthorns from his herd since September, left for Scotland April 5th, with a view to making another importation. His address while there, up to May 15th, will be "Waverly Hotel," Aberdeen.

HEREFORD SHOW AND SALE.

The 27th show and sale under the auspices of the Hereford Cattle Breeders' Association was held at Hereford, England, March 21st. One hundred and forty pedigree bulls were entered, and there were five prizes awarded in each of three classes of bulls. The highest price of the day was made by Mr. Caddick's 3rd-prize yearling bull, Ireland, which sold for 60 guineas, the 1st-prize winner selling for 52 guineas, and the 2nd for 57 guineas.

The 1st-prize two-year-old bull (Mr. Firkin's Lurdon, by Albion) was bid up to 97 guineas and withdrawn.