

**PAGES
MISSING**

THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

Vol. XXXII.

LONDON, ONT., AND WINNIPEG, MAN., MAY 1, 1897.

No. 429.

EDITORIAL.

Further Feeding Tests Suggested.

Widespread interest seems to have been awakened among cattle feeders over the report published in the FARMER'S ADVOCATE for April 1st of the comparative test carried on at the farm of Hon. Wm. Mulock, in York Co., Ont., between fattening steers (dehorned) loose in a large pen or stall and others tied in the ordinary way. In this connection the practical letter in this issue from Mr. W. C. Edwards, M. P., to which we gladly give space, is a valuable contribution on the subject, as on his farm at Rockland over 100 steers are wintered each year upon that very plan. The remarkable gains reported in favor of feeding steers loose in the Mulock trial indicate the desirability of having further tests made either privately or at some of the experimental farms. The incidental advantages referred to in Mr. Edwards' letter are decidedly important, even though further investigation did not disclose as large comparative gains as reported from the Mulock feeding stables. Since the foregoing was written Messrs. A. & D. Brown, successful feeders as well as breeders of Shorthorns, send us an epitome of their seven years' experience, which is that they could not be persuaded to return to the old plan.

The Agricultural College Farm.

Principal Mills, of the Ontario Agricultural College, in a letter published in this issue defends the management of that institution against the attacks made upon it in the Legislature during the late session.

Fair criticism of the management of public institutions is all right in its place, and the Legislature is the proper place to demand explanations and seek for information as to the expenditure of public moneys and the returns which are made for such expenditures, but it should be borne in mind that the officials of the Experimental Farm are only human and do not claim to be infallible; that, like the best of farmers, they are liable to make some mistakes, and have to contend with conditions which they cannot always control. In farming, quite as often as in other lines of business, the words of the Scottish bard come true, "The best laid plans of mice and men gang aft aglee." It takes a good farmer all his time nowadays to show a good profit on his year's business, and the superintendent of a farm such as that at Guelph, connected with a college and subject to Government control, has no easy task to manage, surrounded as he is by so many interests and influences which tend to distract the minds of master and men from the work in hand, and probably few men could be found who could do better work than Mr. Rennie has done or do it more economically. He has certainly succeeded in making very great improvement not only in the general character of the farm, in point of cleanliness, of culture and yield of crops, but has also very largely reduced the expenses of feeding the stock on the farm while keeping them in good, vigorous condition, and from what we know of his methods and the way he carries them out we are persuaded that apart from the disabilities he labors under in connection with other interests of the institution, the farm proper under Mr. Rennie's management is more than paying its way, as Dr. Mills' letter shows. A lamentable misconception of the work of the college and farm seems to underlie a good deal of the ill-informed criticism indulged in. It is only necessary to reflect that it is an educational institution devoted also largely to scientific and experimental investigations connected with agriculture and the form of the view taken by the FARMER'S ADVOCATE will be apparent. It would be just about as reasonable to demand that public schools or college institutes be made to pay in a direct money

sense. Canada has reason to be proud of the O. A. C. It is doing most excellent work. The only one in the Dominion, its scope and equipment should be enhanced rather than restricted.

The Canadian Horse Show.

The third annual Canadian Horse Show opened its doors to an admiring public on the morning of April 29th. The duration of the show was this year reduced to three days, in which it was expected the spacious Armories would be crowded on each afternoon and evening by the horse-loving elite of Toronto and other cities and country points. A large American patronage was looked for. It is a regrettable fact that the show could not be held at a more favorable time for the rural classes, not only to enable them to bring out their stock for competition but also for their patronage when important lessons could be learned as to the sorts of horses to raise for the high-class market. We must not forget, however, that although farmers cannot leave home at this season (it being the midst of seeding) to exhibit their stock and witness the show, a positive benefit to them will result in the stimulus such a show gives the horse trade by creating a demand for these—the noblest of animals—among men who have not previously felt any desire to own a horse.

The result from the sale of boxes totaled up to about the same as last year, 32 boxes selling for prices ranging from \$30 to \$100. There is only one American exhibiting this year, Mr. Stoetsbury, Philadelphia, Pa., who is exhibiting roadsters. Among the most prominent Canadian exhibitors are: Messrs. Beith, M. P., Bowmanville; Graham Bros., Claremont; Robt. Davies, Toronto; H. N. Crossley, Rosseau; Hillhurst Farm, Hillhurst, Que.; Hendrie, Hamilton; Fuller, Woodstock; Beck, London; Quinn Bros., Brampton; Royal Stables, Guelph; and Toronto Horse Exchange.

The entries this year number about 440, the largest numbers being in the single and double harness, and saddle and hunter classes. There is a falling off in draft stallions, due no doubt to the fact that most stock horses have entered upon their breeding season, which promises to be a busy one this year. There is also a falling off in Hackney stallions; Thoroughbreds remain about the same as last year, while Standard-bred roadsters are almost double last year's entry.

Ontario Agricultural College Farm Proper -- Does it Pay?

To the Editor FARMER'S ADVOCATE:

SIR,—I think it is due to our Farm Superintendent, and to the institution which I represent, that I should say a word in reply to the attacks recently made upon us in the Legislature of this Province.

Because of the intimate and peculiar relation which our Farm bears to the College and the other departments of the institution, I have not thought it necessary to make annual statements showing the profits or losses of the farm proper as distinct from the other departments. I have given only the cash revenue and expenditure, with notes to indicate that the College and several of the outside departments are largely indebted to the farm for milk, potatoes, feed, fodder, roots, pasture, teaming, carting, and other things which do not appear in the cash statement.

My reason for confining myself to cash revenue and expenditure is the fact that profit and loss statements based to any considerable extent on estimates or valuations are always open to question, because people differ so much about the amounts which should be charged for the keep of animals, the prices which should be put on hay, grain, roots, etc., and the sums which should be allowed for various services. I hope it does not follow from this that our bookkeeping is defective, or that we need a special accountant to put things in proper shape.

Our farm is well tilled and well managed—economically managed, and pays as well as such land can be made to pay in connection with a college and under Government control. I do not hesitate to affirm thus publicly that neither the

Government nor the Opposition can select a man that will make a better showing than is made by our Superintendent, Mr. Rennie, in the special and peculiar circumstances under which he has to work.

I give below a summary of facts and figures. I would rather give the details, but they would occupy too much space in your journal:—

FINANCIAL STATEMENT OF FARM PROPER (300 ACRES) IN BRIEF FOR TWO YEARS.

CREDIT.		1895.
Cash sales of stock, grain, etc.		\$ 5,081 30
Feed, fodder, teaming, etc., for other departments		1,861 30
Expense of feeding and looking after animals not needed on the farm, but required for educational purposes		1,169 00
Loss from not being allowed to sell animals by private sale, and from having to keep so many breeds that there are not enough animals of any one breed to make a good sale		914 04
Time of Superintendent with excursionists in June		60 00
Amount paid in '95 for steers sold in '96		351 92
		\$ 9,440 56

DEBIT.		
Amount paid in '94 for steers sold in '95		\$ 688 00
Expenditure in '95, less half of Superintendent's salary, which was paid for work of instruction and looking after students		7,005 38
		7,693 38
Balance in favor of farm for year		\$ 1,747 18

CREDIT.		1896.
Increase in value of stock on hand, since Jan. 1, '96		\$ 536 00
Cash sales of stock, grain, etc.		3,704 47
Feed, fodder, teaming, etc., for other departments		1,948 60
Expense of feeding and looking after animals not needed on farm, but required for educational work		921 00
Loss from not being allowed to sell animals by private sale, and from having to keep so many breeds that there are not enough animals of any one breed to make a good sale		479 81
Special work in reclaiming waste land—stumping, stoning, blasting, grading, etc.		250 00
Time of Superintendent at Farmers' Institutes and with excursionists		175 00
Amount paid in '96 for steers to be sold in '97		341 55
		\$ 8,359 43

DEBIT.		
Amount paid in '95 for steers sold in '96		\$ 351 92
Expenditure in '96, less half of Superintendent's salary, which was paid for work of instruction and looking after students		7,400 22
		7,752 14
Balance in favor of farm for year		\$ 607 29

The marked difference between '95 and '96 is due to the fact that a large crop of hay intended for feed in the winter of 1896 was destroyed by frost on the 21st and 22nd May, 1895; and the price per pound for beef cattle sold in 1896 was considerably less than in 1895.

Expenditure for Buildings and Equipment.—A considerable sum has been spent within the last few years for buildings and equipment, but nothing unnecessary or extravagant—everything of the plainest kind, absolutely necessary to enable the institution to do properly the work for which it was founded, and not to be compared in cost with similar buildings and appliances in the United States, such, for example, as the dairy building at Madison, Wisconsin, \$40,000, voted by the State Legislature and raised by direct taxation; a dairy building at Cornell, \$50,000, and a veterinary building, \$100,000, also voted by the State Legislature and raised by a direct tax.

Work Done for the Province.—A large part of our annual expenditure is on account of work done, not for the students in attendance, but for the Province as a whole. The salaries of our professors, instructors, and experimenters are all paid by the College, while a considerable portion of their time is properly chargeable to the Province. The professors organized the Farmers' Institute, and did the greater part of the work in connection with them, lecturing all over the Province, without a dollar of extra remuneration, for ten or eleven years. The travelling dairy has gone from one end of the Province to the other, at large expense, but all charged to the College. Our very extensive, valuable and costly field experiments; our experiments in feeding; the work in our experimental cheese department for nine months of the year, and in our butter department for the same length of time; experiments with strawberries, etc., in the horticultural department; the analysis of ashes, fodders, sugar beets, milk, butter, cheese, etc., in the chemical laboratory; the study of the contamination of milk, the investigation of foul brood in bees, and the manufacture of tuberculin in the bacteriological laboratory; the identification of weeds and insects, and the answering of all sorts of questions relating thereto by Professor Pantou for farmers throughout the Province; the writing of our bulletins and reports; all this and more is for

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN THE DOMINION.

PUBLISHED BY THE WILLIAM WELD COMPANY (LIMITED), LONDON, ONTARIO, AND WINNIPEG, MANITOBA.

JOHN WELD, MANAGER.

- 1. THE FARMER'S ADVOCATE is published on the first and fifteenth of each month. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical, and reliable information for farmers, dairymen, gardeners, and stockmen, of any publication in Canada. 2. TERMS OF SUBSCRIPTION—\$1.00 per year in advance; \$1.25 if in arrears; sample copy free. European subscription, 6s., or \$1.50. New subscriptions can commence with any month. 3. ADVERTISING RATES—Single insertion, 30 cents per line. Contract rates furnished on application. 4. DISCONTINUANCES—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrears must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post Office address is given. 5. THE ADVOCATE is sent to subscribers until an explicit order is received for its discontinuance. All payments of arrears must be made as required by law. 6. THE LAW IS, that all subscribers to newspapers are held responsible until all arrears are paid and their paper ordered to be discontinued. 7. REMITTANCES should be made direct to this office, either by Registered Letter or Money Order, which will be at our risk. When made otherwise we cannot be responsible. 8. ALWAYS GIVE THE NAME of the Post Office to which your paper is sent. Your name cannot be found on our books unless this is done. 9. THE DATE ON YOUR LABEL shows to what time your subscription is paid. 10. SUBSCRIBERS failing to receive their paper promptly and regularly will confer a favor by reporting the fact at once. 11. NO ANONYMOUS communications or enquiries will receive attention. 12. LETTERS intended for publication should be written on one side of the paper only. 13. ALL COMMUNICATIONS in reference to any matter connected with this paper should be addressed as below, and not to any individual connected with the paper. 14. WE INVITE FARMERS to write us on any agricultural topic. We are always pleased to receive practical articles. For such as we consider valuable we will pay ten cents per inch printed matter. Criticisms of Articles, Suggestions How to Improve the ADVOCATE, Descriptions of New Grains, Roots or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation, are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage. 15. REPLIES to circulars and letters of enquiry sent from this office will not be paid for as provided above. Address—THE FARMER'S ADVOCATE, or THE WILLIAM WELD CO., LONDON, ONTARIO, CANADA.

the Province at large, and accounts for over half of our expenditure for buildings, equipment, and annual maintenance.

Shall We Have a Cheap Agricultural College?—I have no objection whatever to the closest possible scrutiny of every item of our expenditure, but I cannot help thinking that many worthy and well-informed people have an entirely wrong conception of what an agricultural college should be. It is very much to be regretted that some excellent men have come to the conclusion that very large sums of money are necessary to equip colleges and universities to educate farmers' sons and others for the legal, medical, clerical, and teaching professions; but that cheap buildings, cheap appliances, and cheap teachers are all that the country needs to educate young men for life on the farm.

I maintain that we should have a more extensive equipment than the university, and quite as large an annual income, if we are to do our work properly. All that is needed to teach English, French, German, Latin, Greek, Hebrew, Italian, Spanish, history, literature, pure mathematics, metaphysics, logic, and several other branches of the university course is a professor and a classroom for each. In an agricultural college we must have this kind of equipment for English, mathematics and other branches; we need also the same laboratories as the university for physics, chemistry, geology and biology; and, in addition, we require expensive equipment for practical instruction in bacteriology, live stock, veterinary science, dairying, horticulture, poultry management and agriculture. All this and more, with equally good teachers, if we are to educate young men for the farm as well as they are educated for law, medicine, teaching and the clerical profession.

A good college of agriculture, like any other good college, is an expensive institution. The necessary expenditure for buildings, furnishings, apparatus, technical appliances, teachers, and experimenters is large, but the work has a direct bearing on the most important industry in the country, and we entertain the hope that those to whom we look for the ways and means will see the importance of providing whatever may be necessary for a first-class agricultural education and the further development of scientific agriculture in this agricultural Province. Yours truly, Agricultural College, Guelph, JAMES MILLS. April 19th, 1897.

HUGH MUNRO, Colchester Co., N. S., when renewing his subscription says:—"I am highly pleased with the ADVOCATE, and if every farmer were taking it we would have before long more good farmers."

MAJOR JOHN VARCOE, Huron Co., Ont., writes us as follows:—"I have taken the ADVOCATE ever since it started, and like it better all the time, and cannot afford to do without it, although times are hard."

Mr. Macpherson to His Critics.

THE "BUSINESS END" OF FARMING—THE FARMER A "SCIENTIST, PHILOSOPHER AND DISCOVERER"—MARKET VS. CONSTITUENT VALUE—PREJUDICE AGAINST TRUTH—A CONUNDRUM.

To the Editor FARMER'S ADVOCATE:

SIR,—I have read with interest the criticism of Mr. R. C. Allan, Northumberland Co., Ont., on the statements which I sent you of the past and present results of my farm operations. As Mr. Allan asks several personal questions relating thereto, I take the liberty of devoting some space to answer them, and will at the same time ask Mr. A. one question for him to answer. In order to meet the situation and make as plain as possible some of the misunderstood problems of progressive agriculture, and the positions which I have taken to discover, practically, and at the same time aiming to discover, ways and means to put into practice for the general good of farmers and the country at large, I therefore crave the privilege of taking more space than I should otherwise do to make clear some agricultural truths, laws and principles which bear mainly on the question at issue. I take strong grounds that true progressive and profitable agriculture is based on clear, well-defined business principles far more intricate and difficult to comprehend and solve than any other business or vocation in existence, the leading requirements of which are to purchase largely and cheaply, and sell largely at a (maximum) profit. A farmer buys every article he produces on his own farm as well as what he buys outside of his farm. He purchases all products produced on his farm with his own labor, his hired men's labor, and his capital—as if he purchased all similar products on his neighbor's farm or in the general market; for instance, one ton of milk costing a farmer \$16 to produce on his own farm by counting labor, expense, interest, wear and tear, and repair, is as practically purchasing the same as if he had bought one ton of milk from his neighbor costing \$16. The same in regard to a milk cow; if it costs \$30.00 to raise a milk cow on a farm, and the same class of a cow can be purchased in the market for \$25, as far as obtaining the cow is concerned it is purchased in both cases; the only difference is the question of cost and likely profit. A successful farmer therefore:

MUST BE A GOOD BUSINESS MAN.

He must be able to know and practice when and where to buy cheap, and when and where to sell dear. If he knows where he can buy a feeding steer from his neighbor or in the market for \$25.00, which will cost him \$35.00 on his own farm, then he should buy; but if he can raise a steer on his own farm for \$25, which would cost \$30 in the market, then he should raise the steer; and so on. This economic principle must be followed out in order to profitable production. A farmer must not only be a good business man, but he must be a manufacturer of the most skilled kind. He must be able to manufacture a product usually containing some elements different from the raw material to start with, and he must be able through the power of animal and plant life to produce a valuable and salable article at a cost much less than the market value; for instance, one ton of stable manure which with skill can be converted into a ton of milk. The manure in the first place contains water, nitrogen, potash, phosphorus, and some of the minor mineral ingredients, as well as some carbon. Milk contains a similar amount of water, nitrogen, potash, phosphoric acid, lime and some other mineral ingredients, also oil as well as carbon. The plant during growth appropriates the mineral elementary portion from the soil and the fat and carbonaceous elements from the air. The cow assimilates the plant by digestion of its food and elaborates it into milk by a distinct process effected by animal life. The elements of milk are the basis of animal and plant life, and human intelligence, the basis of all farm productions. Hence a farmer usually buys mineral matter and sells mineral and air products combined with water. His costly raw material therefore is mineral products, such as potash, phosphoric acid, lime, etc., along with one air product, nitrogen, and the obtaining of these in large amounts is a costly business. The combination of these mineral matters along with air and water produces a salable article, must demand his highest calculative capacity as well as his manufacturing skill, so as to make the most valuable manufactured product at the least possible cost, which effect is to make the greatest possible profit. If he can at the same time by doing this add to his capital basis the means to enable him to increase his profit from year to year, we can consistently say that the future results obtained from his work and capital will be progressive, and we can safely and properly call this progressive farming.

To assume under these conditions that a farmer must not be a buyer, but only a seller, would be just as reasonable as that a merchant must only be a seller and not a buyer. All goods are for the reasonableness of a merchant purchasing a full stock of goods to sell to his customer, after selling his surplus stock must replenish this stock promptly by purchase; and a farmer in the same way must if he expects to stay in the business purchase to replenish his reduced stock of raw material in proportion to what he sells in his finished product. A successful merchant must be a good business man, and the better he is posted in the science of business, and applies his skill in good practice the greater, as a rule, his possible success. A good business merchant need not be necessarily a natural scientist, but a successful farmer must not only be familiar with the best science of business principles, and industriously apply them, but he must be a

SCIENTIST, PHILOSOPHER AND DISCOVERER.

A successful merchant usually sells the same product in make and form that he buys. His main function is to buy cheap and sell at a good profit; but the farmer must usually sell an entirely different article from what he buys or has given him. If he has purchased a farm, or one is given him, he transforms the expensive mineral elements of the soil in combination commodity used to produce this salable commodity in elementary form is precisely the same, only in different combination and form. Hence the business calculation of a good farmer is to discover where and how he can obtain his raw material at the least cost and produce a good salable article which will include in combination the most of air and water products (free) and the more costly products, and thereby realize more for his work and skill.

In the production of most all farm products the expensive mineral elements are phosphates, potash, lime, etc., and our air element, which is nitrogen, and the cheap products appropriated by the plant from the air are carbon, fat and water. The base of all plant growth must first come from the mineral elements of the soil, which are held in physical combination to be easily appropriated by the plant. The expensive mineral elements of the soil are usually of a limited amount, the average component parts of these in fairly good virgin soils is only enough for 25 to 30 full crops of cereal grains. The roots of plants can only distribute themselves to partially control the whole surface of the ground, extending downwards to appropriate these elements of its food which are necessary for a full crop. It is clearly seen that a large surplus of such material must be distributed in all parts of the soil before a full crop may be grown, hence a very large supply must be left in the soil for the roots to draw from. A fair average calculation is that soil should contain the component parts of fifteen to twenty-five crops before a full crop can be produced.

The expensive nitrogen which all plants require for their growth and development can be appropriated directly from the air by only one class of plants, called legumes, and even these collect nitrogen in a very limited measure, and a farmer in order to acquire sufficient annual supply of this very expensive element for full crops must secure it from outside sources.

A very important feature of this nitrogen element is that it is soluble in water and is carried by drainage water down out of effective reach of the plant roots, hence the supply is easily exhausted and lost by spring rains and heavy floods. It can only be retained in limited quantities in all soils by the surface being kept covered by crop and vegetable roots. Clover, peas and beans have the power of appropriating nitrogen from the air in small quantities, and this is one agent used by the farmer to secure a portion of this needful element, but the largest proportion that the farmer must have to grow full crops every year he must purchase in some form or other. This can be done to a large extent in most all animal foods, such as oil cakes, cotton-seed meal, peas, beans, bran, grain of all kinds. The usual commercial values of the base of plant food is nitrogen, 15c. per pound; phosphoric acid, 6c., and potash 4c.

MARKET VALUE AND CONSTITUENT VALUE.

All farm crop products have two values, one a market value for animal and human foods, the other the constituent value for plant foods; for instance, the constituent plant food value of seven bushels of oats is about \$1, and the market value at present would be about \$1.40. The same \$1 worth of constituent would be found in 1,000 pounds of milk, having a market value of about \$18. The same \$1 worth will be found in 200 pounds of fattened beef, worth \$8. The same amount will be found in 300 pounds of fattened pork, worth \$12. One ton of bran, having a market value of \$5 or \$9, has the same constituent value (at 30c. per 100 pounds) of \$100 worth of milk. One ton of gluten germ meal, costing \$10 per ton, has the same constituent value of 18,000 pounds of milk, having a market value of \$144. Many other similar examples could be shown to illustrate the possibility of buying cheap material in the cheapest market and selling a dear material where skill and capital are employed with good business capacity. It is not possible for a farmer to obtain his raw material which he needs to produce full crops, such as the phosphates, potash, lime and other mineral ingredients, without cost, and therefore to do so he must purchase same wherever he can. And it is his duty to purchase such in the cheapest and best market, whether it shall be fertilizers, cattle foods, or cattle themselves, or even human foods. Self-contained farming is not self-sustaining, and therefore untenable, and its continuation is impossible. To continue to exhaust soil is to produce a condition which makes a downward course of increased unprofitable farming, a system that should not be commended. It is a law of nature that power is reduced by use, and can only be maintained by supply in proportion to what is used. So it is a law of agriculture that fertility of the soil is exhausted by growing crops, and can only be maintained by a return of what is sold in crop products, and as a portion of this return of fertility which is exhausted by crop products must be purchased, then it is the duty of the farmer to use what agricultural scientific truths that is possible to obtain within his reach, along with the use of agricultural business science, so as to enable him to secure the greatest amount of such at the least cost.

The criticism of Mr. D. P. Cameron does not call forth a detailed reply from me, only to call his attention to a gross error of his figuring and figures.

Mr. McCulloch's criticism does not also need a reply further than what has been previously explained, but I regret to observe his apparent

PREJUDICE TO TRUTH, LAW AND PRINCIPLE

relating to their use in advanced agriculture, and also a lack of knowledge of business principles relating to progressive farming, which has evidently warped his judgment and misdirected his conclusions.

The criticism of "A. O. F." Ontario Co., seems to me to be rather curious, and his taking other persons' figures and applying them to my work carries condemnation within itself, and needs no refutation. I only wish to observe that I do not consider that there is anything of much importance in either estimated or actual crop product or value; whether it be forty or ten tons of corn per acre, or whether it be \$1 or \$3 per ton estimate value, or whether cows give only \$20 in the season, it may be of some interest and curiosity and some value as a guide to the possibilities in maximum average and minimum of crop products and estimated crop value or cow product, but the main importance is to produce the greatest salable cash product at the least cost per acre, giving in the aggregate of all crops grown on a farm the greatest average cash and capital profit per acre for the whole of a farm, and at the same time leaving a condition each successive year which will add to capital value as well as cash dividend, making progressive cash dividends from year to year as well as progressive capital value. The above problem is the one to be solved by practical farmers before the farm can be made to pay, and is the main problem that I have been studying and trying to solve during the last thirty years, and I have striven to give to the farmers and public of Canada the results obtained on my farm so far up to the present time, given in a fair and truthful manner as I am able to do. I do not expect to master all the details of discovery relating to agricultural business science and their application to private and public wants. I do assert that I have made some advance and have discovered some truth or its publication. The more it is criticized and investigated the more brilliant and apparent it becomes; hence, I court fair, unprejudiced criticism and careful investigation. The more that is effected of such, the more I learn myself and am able to extend further discovery and research. The field for discovery in agricultural business science is rich, ripe and opportune, and I hope in the near future to publicly lay bare other truths which may be of public interest and value.

A CONUNDRUM.

I now take the liberty of asking Mr. Allan a true solution of the following problem, asking for the why and wherefore and a full analysis of the cause and effect of the different results obtained from the two practical examples given. One is self-contained system of farming (and what Mr. Allan and others advise the farmers of Ontario to adopt), and the other is progressive farming based on agricultural business science.

1st. It takes on the average ten acres of self-contained farming land to feed five fattening steers raised on the farm for 180 days, to put them into first-class finished condition, divided as follows: one acre of ensilage corn producing 25 tons, one acre of mixed grain, oats, barley and peas—9,500 lbs. The cost of producing and feeding the corn \$20 00 The cost of producing and feeding the hay 5 00 The cost of producing and grinding the grain 80 00 Additional expense, interest, insurance, wear and tear. 10 00 Total. \$115 00 Total increase gain in value of steers while feeding over cost of production, \$120 00. Net cash profit 5 00

The cost of producing a 1,000-pound steer in store condition up to the age of 2 1/2 years is actually \$30.00. Net loss of fertility to farm from product sold (five finishing steers) 5 00 Net loss from the transaction, \$20.00.

2nd. It takes two acres of land of progressive farming to feed five steers (purchased in the open market), and \$40 worth of feed, also purchased in the open market, such as bran, shorts and germ meal—sufficient to feed such steers 180 days a well-balanced ration to put them in first-class finished condition, the cost of which is as follows:

One acre of corn to produce and feed \$20 00 One acre of clover hay to produce and feed 5 00 Purchased feed (in cheapest market) cost and feed 40 00 Extra expenses 10 00 Total cost \$75 00

Total income Net Gross profit In market land as the hay, and a steers, we Five acres Purchases Additional Total net purchase Net

It is the able to obtain food in the grain which It is the parative results are out under proposed FARMER'S

Notes

As we announce formerly is now for distinction number coarse grain buy large be welcome with a he line have that feed and some are good which gi is probab depend n who will entry of coarse grain sound do farming cially in all, their for cheap pork, m cattle con the Briti Bill on th There is advantag especially fattening productio a large qu become m exclusive our neighb supposed extent to us, but if less heati and is a diet to h

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The pl April 1st from Brit develop t in well w Under order-in-c in respect formed to sumers.

Total increase value of steers over first cost, \$150.00.	
Net cash profit from two acres land.....	\$ 75 00
Net fertility added to farm from purchased feed.....	50 00
Gross profit from two acres.....	\$125 00
In making the last example to occupy the same amount of land as the first, we have—5 acres of corn and 5 acres of clover hay, and a purchase of \$200.00 worth of feed; this fed to 25 steers, we have the following result:	
Five acres of corn cost.....	\$ 100 00
Five acres of clover hay.....	25 00
Purchased feed.....	200 00
Additional expenses.....	50 00
Total cost.....	\$ 375 00
Total net gain of value of steers while feeding over purchased cost on 25 steers, \$750.00.	
Net profit to balance.....	\$ 375 00
Net increase of fertility added to farm.....	\$ 250 00
Total gross gain.....	\$1000 00

It is here understood and figured out that it is quite possible to obtain as much or more nitrogenous, carbonaceous and fat elements of animal food in the \$40.00 worth of purchased food in the open market than is contained in the 9,500 lbs. of grain which is grown on 8 acres of the farm on which it is fed. It is here asked to give a full analysis of the above comparative examples why such difference of cash and fertility results are obtained on the same area of land (10 acres) worked out under the two described separate systems? Any answer proposed it is desired to have printed in the columns of the FARMER'S ADVOCATE. D. M. MACPHERSON.

Notes on the New Tariff Reductions.

As we go to press the new Canadian tariff is announced. Among other changes, corn, on which formerly a duty of 7½ cents per bushel was imposed, is now free for all purposes (seed included) except for distillation. This to the increasingly large number of farmers who feed all or nearly all their coarse grain, and many of whom find it profitable to buy largely of such feed for stock, will, no doubt, be welcome, since there are frequently times when with a heavy crop of corn our neighbors across the line have a large surplus and the price runs so low that feeders in our country can buy it to advantage; and sometimes by selling oats and peas when prices are good for these, they can buy corn at a price which gives a clear profit in the transaction. There is probably a considerable number of farmers who depend mostly on the raising of grain for sale and who will certainly not view with favor the free entry of corn which will come in competition with coarse grains in the market here, but we think it is sound doctrine to declare that the true system of farming for the present day in Canada, and especially in the older Provinces, is to feed most, if not all, their coarse grain on the farm or to exchange for cheaper feed stuffs to keep up the fertility of the farm, marketing the grain in the shape of beef, pork, mutton, and dairy products. In fattening cattle corn will be particularly advantageous since the British embargo on one hand and the Dingley Bill on the other prevent the export of "stockers." There is no doubt that corn may be used to good advantage and with very satisfactory results, especially if mixed with ground oats and bran, in fattening cattle and in feeding dairy cows for butter production, though it is necessary to avoid grinding a large quantity at once, as it is liable to heat and become musty; but we would not advise feeding it exclusively or largely to hogs, as the experience of our neighbors with hog cholera, which it is generally supposed is aggravated if not traceable to a great extent to a too exclusively corn diet, should warn us, but if judiciously fed in connection with other less heating foods it may serve an excellent purpose and is a very handy feed to dispense as a partial diet to hogs running on grass.

Binder twine is another article on which a reduction is made, and which is to be free after January 1st, 1898. This is a change which will be approved by all farmers, since all are alike interested in cheapening harvesting operations, and the change will not work any special hardships for our home manufacturers since the raw material and all articles upon which duties are levied which enter into the cost of manufacture of binder twine will for this purpose be free from that date.

Barbed wire and other fencing wire is subjected to a reduction, and will be free after Jan. 1st, 1898. It is certain, with the disappearance of timber, that wire will be more largely used for farm fencing as the years go by, and all farmers are interested in obtaining cheaper fencing. Wire is already a staple material for that purpose. Several very satisfactory lines of wire fencing are now on the market. The material for their manufacture admitted at a reduced tariff will lower cost of production.

The duty on agricultural machinery, such as binders, mowers, etc., remains as it was under the old tariff, but the duty on the raw material has been reduced, and this should enable manufacturers to reduce the price of the finished article. Reductions have been made on many of the minor implements, such as shovels, etc., used on the farm, and a slight reduction, one cent per gallon, on coal oil. The feeling in the West, especially, was for more radical reductions, but a variety of interests must be considered, and it is a question if the matter of freight rates is not quite if not a more serious burden with the great grain and cattle producers.

The plan commended in the ADVOCATE for April 1st of reducing the tariff against imports from Britain is a feature of the new tariff that will develop trade in that direction wonderfully and fit in well with the cold storage system.

Under this Bill Government retains power by order-in-council to place on the free list any article in respect to which a combine or trust has been formed to enhance the price at the expense of consumers. Rightly used this should be effective.

STOCK.

Horse Famine Close at Hand.

The short crop of colts for the last few years will begin to tell on us soon. The Kentucky Stock Farm has found by corresponding with the different assessors throughout the horse-raising sections of the country that in some localities there are only 5 per cent. of the regular crop raised, and in no places more than 10 per cent. has been foaled for the last three years.

The visible supply of American horses in 1894 was 16,000,000; in 1896, 15,000,000; and it is predicted by good authority that before the close of the year 1897 the visible supply will be nearly the 14,000,000 mark, and judging from every indication there is a great horse famine close at hand, for with returning prosperity, which is sure to come, and with it a great increase in demand, and as the law of supply and demand governs all prices, an increasing demand with a short supply means that before horses can be bred and produced for the market they will be extremely high.

Do Not Neglect the Flock.

As the warm spring weather comes on the animals about the yard become restive and discontented, and unless we do something towards supplying conditions for their contentment we, as well as the animals, will lose by it. The sheep flock especially needs more attention at this busy season than most of us are inclined to bestow. Too many are inclined to follow the old custom of allowing them to wear their fleece away along till June. This, with a moment's reflection, must show itself as utter folly. Horses, cattle and people shed their winter coats in spring for lighter garments, but the poor sheep very often has to bear the much heavier coat than any of the others have to wear through some of the hottest days of the whole season. This is not only inhuman but very unprofitable neglect. A sheep has no use for its fleece after May 1st in an ordinary season. At the time of shearing the hoofs should be pared into natural shape. A second provision the shepherd should make at this season is that of allowing the flock to get some fresh grass. Where one has no ensilage and only a limited quantity of roots, the succulence of the green grass will make their hearts glad and their lambs grow in a manner to please and profit the person who cares for them. It may not be wise at this season to put them on pasture or meadow, but almost every farm has fence sides, lanes, and by-places that will afford a bite for a couple of weeks, supplemented by the evening and morning supply of clover hay or other dry food. When first turned out in this way, any that are not shorn should be carefully docked with the shears, so as to prevent the befouling of their hindquarters should the grass prove too laxative.

We would not forget to remind busy farming shepherds that immediately after shearing is the proper time to get after the ticks. A small amount of dip will at this time go a long way towards exterminating the vermin of a large flock. The lambs especially need attention in this regard, because ticks, like men, prefer "spring lamb" to "mutton," and seem to find it very quickly when once the warm weather arrives, and we need not be told what effect a few dozen or even individual fat ticks must soon have upon a lamb only a few weeks old.

Mr. Edwards, M. P., Discusses Steer Feeding Methods.

To the Editor FARMER'S ADVOCATE:

SIR,—We are in receipt of the April 1st number of the FARMER'S ADVOCATE, in which is given the result of the steer-feeding experiment on the farm of the Hon. Wm. Mulock, Postmaster-General, the publication of which you say has aroused widespread interest among feeders, and upon which you desire an expression of opinion from us, we having pursued the same system of feeding for some years past; and to your request we cheerfully respond. And let me say at once that I consider the results achieved by Mr. Mulock's manager very superior results, and such as have not at any time been accomplished by us. His steers, no doubt, were of the primest quality: all the conditions must have been as favorable as they could be and his feeder a man who thoroughly understands his business. As for ourselves, we have never made a similar test. Since we began dehorning and feeding loose we have not forced by high pressure during the winter months, but have fed moderately and have finished our cattle on grass, generally turning them off in July or August, and so far as our experience goes this is the system we most approve of. The point, however, which no doubt is exciting the interest of feeders in Mr. Mulock's experiment is the very superior gain in weight made by the animals fed loose over those tied up; but that a superior gain was made is no surprise to me. Previous to dehorning and feeding loose we fed for some years tied up in the old-fashioned way. We have now dehorned and fed loose for some five or six years, and we think the latter much the better way for many reasons, among which are the following: We think it much healthier and better for the cattle, much more comfortable, and that on an even amount of feed they will make a much better gain. Buildings for this method of feeding are much less costly of construction than buildings for fastening the cattle in the old-fashioned way;

arrangements for watering the stock are much more conveniently carried out, and the cost of labor in feeding is greatly reduced; and last, but not least, under this system farm manure is preserved in a much better way than any that in my judgment I know of, and here comes the only point on which I am disposed to criticize or differ to some extent with Mr. Mulock's construction of building and his practice; and I simply give my opinions for what they are worth, based upon past experience. To use a cement floor is not necessary. A clay, gravelly or sand bottom, so long as it is dry, is all that is required. And while a cement floor may be put in at will, at same time no material loss of liquid manure will be sustained when a fairly good, dry earthen bottom can be had. Next, I think twelve feet between floor and ceiling not sufficient. I think greater depth desirable, and to accomplish this without getting too high up as a result of the winter's accumulation of manure, in the construction of our buildings we excavated about four feet below the surface. This gives abundance of room for manure, which, in my judgment, is of vital importance, and instead of drawing out at all during the winter months, I consider it better practice to haul in the horse manure as it is made and spread it in the steers' building, thus incorporating the two, and haul out in the spring or autumn as is found suitable. Our practice for some years has been to haul out in the autumn and use the whole for top-dressing, and I will say that I have never seen as well-preserved manure as we have had since beginning this practice, and I hope I may be pardoned for saying that if this system were uniformly practiced throughout Ontario it would be worth some millions of dollars annually to our Province. Sincerely congratulating Mr. Mulock on the good success of his experiment, and with best wishes for his efforts in the interests of agriculture, I am, yours truly, Russell Co., Ont. Wm. C. EDWARDS.

P. S.—I notice I overlooked a question asked by you. In this system of feeding we have never known any difficulty in the way of the stronger taking advantage of the weaker animals. They more resemble a flock of sheep than anything we know of. W. C. E.

Strong Evidence in Support of Feeding Steers Loose—Seven Years' Experience.

To the Editor FARMER'S ADVOCATE:

SIR,—In answer to your letter of inquiry about our mode of feeding steers, will say in regards to feeding steers loose in box stalls we have been doing it since the year 1891. My attention was drawn to it in the year 1891 in Glasgow, being acquainted with some of the Forfarshire cattlemen who were buying our stockers with horns on, taking them out in the country, dehorning, and feeding them loose in box stalls and taking them finished back to Glasgow. The advantages struck me forcibly. We have been feeding about forty head a year, keeping from three to fifteen loose in stalls. The size of stalls are 40 feet by 22 feet and some 12 feet by 15 feet. We approve very much of that plan. They keep their feet better, remain cleaner and more healthy, and their flesh is firmer and more marbled. They can be fed with less danger and we believe the feed does them more good. As we turn them out on grass to ship out in July we consider that manner of feeding much better, no one animal takes advantage over another in getting more than his share of the meal. We have been feeding steers for about thirty years and we could not be persuaded to go back to the old way of tying them in stalls. We would prefer dehorning them at from twenty to thirty months old. When dehorned younger they bunt more. We have experienced no difficulty in putting strange steers together after they were dehorned. Some pens we clean out three times through the winter and some not until spring. One great advantage here—the manure is all kept under cover and the urine and solids are all mixed together; we by this means get the full benefit of the manure.

Wishing your valuable paper every success,
Yours truly, A. & D. BROWN.
Elgin Co., Ont.

Fed Four Steers Loose.

To the Editor FARMER'S ADVOCATE:

SIR,—In common with many others I was greatly interested in the experiment conducted by Mr. Mulock, M.P., with regard to the fattening of cattle loose vs. tied, as reported in the ADVOCATE of April 1st. But I had great hesitation in complying with your request to give my experience in fattening cattle loose. First because it is limited to this season, and second, as the cattle were not weighed in, and are not yet weighed out, what I can say on the subject will be very largely opinion, not fact. Last fall, as I had more feed than the cattle for which there was stable room could consume, I decided to fatten four steers in what we call "the shed"—where the manure is stored and where the two-year-old cattle spend the winter. It is not open, but quite snug and comfortable, about 30 x 50 feet. I did not think these cattle would do nearly as well as the others, but thought it was better than having good feed go to waste. There were eight cattle in all in the shed; tied up when eating corn, grain or roots, the rest of the time loose with free access to straw. It was soon noticed that the cattle fattening there cleaned up their cut corn better and would eat more of it than those tied up. Also on being let loose they would eat straw sufficient to keep them

always looking bagged full. They looked better right along, and it is my opinion that they made a decidedly greater gain, but I don't know. Such is my experience, to which you are welcome for what it is worth.

Middlesex Co., Ont.

THOMAS BATY.

Herefords on the Range.

To the Editor FARMER'S ADVOCATE:

SIR,—Since the cattle trade is again looking up those who have considered the "old cow" as the most profitable bovine property are now in the front rank with large numbers of serviceable mothers of beef. The long-horned Texas steer is rapidly becoming extinct upon the Western ranges. He served his day and generation well, but as he refused to mature until fully grown, he has been pushed aside by a more progressive race, which can be made prime at any age from six months up. The type required by cattlemen to-day is the short-legged, blocky, early-maturing, mellow-fleshed ones so characteristically embodied in the Hereford.

Color in cattle is their most valuable token of truthfulness of breed, their strongest evidence of stability and potency in transmission. It matters not what a Hereford bull may be mated with, the offspring will bear a white or mottled face; and this characteristic marking has won for the "white faces" a favorite distinction in the stock markets of America. Buyers and feeders alike have learned by experience that behind that white face there is a form which will meet their requirements. It is a guarantee that the bearer when "weighed in the balance" will not be found wanting.

No one with any real knowledge of the history of the Herefords and their developed, fixed capabilities will question their right to supersede all other breeds on the range, where their whole life is one of continual rustling for grass, which is their sole subsistence. Their notoriety as grazers has been a marked feature in their nature ever since the foundation of the breed. On the range their thrift and rugged constitution make them the ideal cattle for profitable ranching, capable of getting fully ripe on grass alone, a quality which no other breed possesses. They are equally available at earlier ages for shipment to the feeders of the corn-growing States. Some ranchmen have taken exception to the white faces on account of their length of horn, and have tried the polled breeds. Now, when an Angus or Galloway steer is made prime he makes a wonderfully good carcass of fine quality, but when in a half-fat or unfinished condition the flesh is somewhat blue and coarse-grained; so the rancher who ships his cattle to market in this shape finds them unsuited for him and prefers to dehorn the horned bullocks—they are then gentle and easily handled. No other breed of cattle, with the exception of the Galloway, possesses such an abundant growth of curly, mossy hair, which protects them from the winter blasts and enables them to rest comfortably outside in some sheltered exposure even when zero weather prevails. Those who have seen only old Hereford cows, which have grown "pachy," might assume that the entire breed possessed this undesirable feature, but such is far from being true. These are days of "baby beef." The massive 2,000-pound steer is no longer sought after, but the neat, tidy, evenly-fleshed, little 1,400-pound bullock stands as the modern beef type in the eye of butchers and packers; and a well-fed two-year-old Hereford steer approaches this standard more closely than any other breed or combination of breeds. They lay on flesh evenly, the high-priced cuts are well-fleshed and firmly packed, the once characteristic light thigh, by careful breeding, is being let down and filled out, as was exemplified in the Hereford steer, "Jack," which won over all breeds at Madison Square Garden last fall. A prominent Shorthorn breeder of Ontario pronounced him beef from "lugs to heels," and the best yearling steer he had ever seen.

Cows which produce more milk than is required by their calves are not desirable on the range, and this fact has prejudiced ranchmen against some strains of Shorthorns. Cattlemen on the plains cannot give a cow which has lost her calf but very little attention, and a ruined udder ensues if she be a milker of any note. On the other hand, Herefords produce milk of good quality and sufficient quantity to raise their calves well; thus it is better for the cow and also for the calf. They are excellent mothers; the calves are dropped strong, lusty fellows, are soon on their feet, and require little attention if parturition has been normal.

The many excellencies of the white faces are not confined to range conditions alone, by any means. In the stall they lay on flesh rapidly. In the feed lot they invariably get to the top. In conclusion, I wish to state that just recently I saw a bunch of fifty Hereford cows and heifers brought in off stalk fields, where they had been pasturing all winter, in good condition for immediate marketing. The other day I helped load a car of young bulls, from six to ten months old, which averaged within a trifle of \$100 per head. They were shipped West to go on a large range.

Moweaqua, Ills.

TOM C. PONTING.

Our Scottish Letter.

A Dismal Spring.—Farmers here are not having a good time. Spring has been abnormally backward, and rain has been falling heavily almost every day. There is no proper seed-bed, and, what is worse, no immediate prospect of improvement. The early potato growers on the Ayrshire coast were caught before half through with planting, and others are in no better predicament. The outlook is by no means bright for the future, but for the present prices alike for beef and mutton show an advance. Generally speaking, breeders, feeders, and dairy farmers have a fairly good return now, but of course there is nothing like the profit secured in days not so long gone by when prices were much higher and farming was one of the paying trades. The wheat grower has experienced extraordinary vicissitudes. In November prices were tending upward, and quidnuncs prophesied that an English average in March would be 40s. per quarter, with a top quotation on Mark Lane of 50s.; but alas for the prophet! we have an average of 27s. and a top price of 30s. in the third week of March, and no immediate prospect of a change.

Bimetallism.—Attention has been directed to the extraordinary fact that such prices should prevail while our fellow citizens in India are starving and pestilence stalks through their land. The bimetalists say this is due to the monometallic standard of the Latin Union, but I must admit that I have been unable to follow the train of argument which leads to this goal. The apostles of a dual standard in money are extremely active, and held a successful meeting in Edinburgh a few days ago, when before an audience of over 200 a spirited debate took place, showing both sides of the question. The subject is certainly attracting more attention than formerly, and has come within the sphere of themes which are treated seriously. This is a step in advance, but it is very doubtful whether it can ever mean ultimate victory for the dual standard. A country like Great Britain, which is so largely a creditor of other countries, cannot afford to abandon the gold standard, and the fact that the free coinage of silver means an advance in the price of staple commodities renders it hopeless to expect the support of the industrial classes to any scheme involving a dual standard.

The period of quiescence in the sheep world is over, and everywhere shepherds are busy with the lambing. So far reports are favorable, but the excessive rainfall is calculated to awaken serious forebodings in the breasts of flockmasters.

A lively discussion has been going on for a long time on the subject of Blackface wool. It arose from a lecture delivered in Muirkirk, by Mr. James Hamilton, of Woolfords, Carnwath, one of the most successful breeders of Blackface sheep, in which the fashion for strong long wool was defended and advocated. Many manufacturers and wool merchants condemn this kind of wool, and the discussion has broadened out until it finds exponents in Bradford and all over Scotland, as well as in England and Ireland. It would not be easy in the narrow compass at our disposal to explain the matter in dispute. Briefly, the difficulty lies here: Breeders claim that long, strong, dense wool is the best protection for the sheep on high, exposed soils—in some cases from 2,000 to 3,000 feet above sea level. They say that such wool weighs heavier and clips a heavier fleece than the thick, soft, shorter and denser wool which it is admitted is most in demand by manufacturers, and sells for more money per pound than the fashionable wool. That is so much from the standpoint of wool alone. The feeder of Blackface mutton says he can fatten a sheep with the shorter, thicker, softer wool much more speedily than one with the other kind, and on the whole this is not denied. The fact of the matter is the various parties to this debate discuss the question from the standpoint of their own interests. The best judges are those who look at the question from all sides, but it is hardly possible to find such in a business of this kind. Practically the end of the matter is that the public give by far the best prices for rams carrying strong fleeces, and so long as they do so it will be the duty of flockmasters to breed such.

Breeders of Border Leicesters are moving in the direction of founding a flock book, but there is an unfortunate lack of enthusiasm amongst them, if not latent opposition to the proposal on the part of some of the best-known breeders. This is very shortsighted policy, and all the more to be wondered at in view of the success which has attended breed societies and pedigree registers in connection with all other classes of stock. The Border Leicester occupies a good position amongst sheep as a very useful animal for crossing purposes. The produce of the B. L. ram and the Blackface ewe is in this country called a cross-bred, and the produce of the B. L. ram and the Cheviot ewe a half-bred. The distinction is arbitrary, but useful, and I have also sometimes thought it was due to a latent recognition of truth in the theory that the modern Border Leicester was partially molded or developed from Bakewell's Leicester by means of the Cheviot. Be that as it may, the Border Leicester bears a much closer resemblance to Bakewell's Leicester than do the English Leicesters of the present day, which are not without an affinity to the Lincoln. The Border Leicester is the one Scottish breed likely to develop an extended foreign trade, and in view of this the lack of enthusiasm in regard to a flock book is much to be regretted.

In the cattle world the chief events lately have been the bull sales. All the breeds have had a good

run, and there is a place for each. The highest price of the season's sales was curiously enough made by a Highland bull, bred by Mr. Stewart, of Ensay, in the outer Hebrides. This bull was bought by the laird of Cannan, and it is a curious circumstance that this ancient breed should have secured the highest average of any during the spring sales. Of course, their numbers are much less than those of the Shorthorn and Aberdeen-Angus breeds, or even the Galloway breeds, and hence it is easier to get a big average out of them. Highland cattle are in great demand. Everywhere the rich and noble are their patrons, and immense numbers of bullocks and heifers are ever on the move south. No other breed could live on the pasturage which supports them. They are hardy in the extreme, and one of the great aims of their breeders in these days of enforced maturity is to maintain the native hardiness of the race. This is their most valued characteristic and on no account should it be sacrificed. Without hardiness Highland cattle would be in little favor. Any other breed would do as well. But given this merit and they can make a living for themselves and their owners where no other breed could live. Galloway cattle approximate to them in this respect, and have the additional merit of being polled; indeed, it would be no serious misnomer to characterize Galloways as polled Highlanders. Their bull sale is over and many grand cattle were disposed of, but breeders of the hardy blackskins must exercise greater judgment and castrate many more of their cattle than has been their wont in days past. Nothing so much damages a bull sale than a heavy contribution of second, even third class stock. A good steer is worth much more than a bad bull.

Appropos of cattle, there is a good deal of discussion at present on the tuberculin test. Although the experiment stations on your side of the Atlantic have tested the value of tuberculin as a diagnostic agency, a vast amount of scepticism prevails on this side regarding it. Veterinary surgeons differ widely in their opinions as to its merits, and altogether there is urgent necessity for testing fairly and fully its value in this country. Government is very slow to move here in connection with this question, but the numerous discussion societies have given it much attention. Personally I am satisfied that tuberculin is a very accurate diagnostic agent, that it gives a true result in the very large majority of cases, but that it requires to be utilized with great care, and no wise man will condemn it because in a specified number of cases it seems to fail to reveal the presence of disease. It must be very carefully handled, and before it is denounced as a "frost" it ought to be established that the operation of injecting the fluid under the skin was skillfully performed, and that after death the carcass of a reacting animal was carefully and exhaustively examined. A Royal Commission is sitting on this subject at present, and several Scottish witnesses have been summoned to give evidence. One Scotchman, Mr. John Spier, the well-known tenant of Newton, Cambuslang, has a seat on the Commission, much to the chagrin of some organs of English agriculture, which view this as a piece of favoritism. It is not so, but a well-merited recognition of Mr. Spier's pre-eminent position amongst tenant farmers. A self-made and self-educated man, he is a singularly well-informed agriculturist. The amount of work he gets through is enormous, and he is to be congratulated on the position to which he has attained.

Horses are not in great demand, but Hackneys are having a good deal of attention concentrated on them. The recent London show was again an unqualified success, and the chief honors were as usual won by the Denmark blood. Danegelt 174, as in many years past, led the way amongst winning sires, the final combatants for champion honors being his sons Rosador and Royal Danegelt. The tie was contested inch by inch, and in the end the horses were stripped and Rosador won. He is a wonderfully well-made horse with very good action, and his owner and breeder, Mr. F. W. Buttle, Thirkley Manor, Wharram, Yorks, knows how to show him. The champion mare is Orange Blossom, a beautiful animal, but we have seen her looking better. She was hard pushed by her half-sister, Bonwick Belle, both being got by the fine old horse, Connaught 1453. Scottish exhibitors were very successful at the recent show. Mr. C. E. Galbraith, formerly of Ayton Castle, now of Terregles, Dumfries, bred first and second two-year-old fillies, and Mr. James MacMeeken, Carnbooth, Busby, bred and owned the first and sixth three-year-old fillies. These are well-bred animals; one of Mr. MacMeeken's fillies, Lady Compton, securing the junior champion cup for females. Mr. Galbraith was also first in another class with the very handsome mare, Danish Lady, and Mr. Patteson, Laidlawstiel, Galashiels, was likewise a prize-winner.

A great battle rages around the Hackney in Ireland, and a commission is sitting, charged with an investigation into the history of the breed and their utility as general-purpose horses. Many dread the introduction of any blood but that of the Thoroughbred into Ireland, and many witnesses have been examined to settle the points in dispute. It is idle to deny that the Hackney is not a hunter, and equally idle to deny that there are many districts in Ireland in which the Hackney stallion would not be much more useful than a weedy Thoroughbred, which breeds neither good hunters nor anything else.

"SCOTLAND YET."

Breed and Type of Saddle Horse Parentage.

Among the salable horses of the present day the high-class saddle horse holds a prominent place. He has much in common with the English or Irish hunter, including the qualities of strength, elastic gait, intelligence and courage. The breed *par excellence* for the saddle is the Thoroughbred, which when sufficiently strong cannot be improved upon by the introduction of any other blood; in fact, when strength is sought to be introduced by using the blood of any other breed the results are as a rule unsatisfactory. With the best of breeding there are usually too many misfits, and when one departs from pure blood in either sire or dam he in a corresponding degree courts failure in securing a certainty of type in the offspring. So long as we deal with pure-bred animals alone, whether they be horses, cattle, sheep or hogs, we may breed to type, but directly we come to crossing one breed with another we are at once uncertain as to what the result will be. We may breed a Thoroughbred horse to a strong saddle mare of mixed breeding and the produce may be worth several hundred dollars or it may be fit for nothing more than very ordinary work.

In breeding for the saddle the sire should be thoroughbred or practically so, possessing the conformation desired in the offspring. Graceful bearing is of prime importance. A clean, bony head and fine arching neck are among the first features to attract a horseman, especially a moneyed man who rides for pleasure. It goes without saying that a short, strong back, high at withers, a good girth, and powerful, well-laid shoulders are also among the desirable possessions. The strong arm and well let down knee will indicate strength, safety and durability. A long, deep and muscular hind quarter, with well let down, flat, strong hocks, are also marks of superiority in the saddle sire. Fine elastic pasterns of medium length are also desirable. It is not necessary that he should have won races; in fact, most of the turf winners have too little substance to commend them as sires of salable saddle stock. Even if he be somewhat of the "cobby" order he should not be objected to so long as his shoulders are well placed and his back and loins muscular.

The breeder cannot too soon realize that the choice of a suitable sire is only one step towards breeding a saddle horse. It is of paramount importance that the dam should be equally good in her way. A mistake too often made is to breed from undersized or worn-out mares. A lightweight saddle horse suitable for a lady may, if first-class, sell for a good figure, but the chances of obtaining a remunerative return are much in favor of the greater weight carrier.

What kind of a mare is most likely to produce a selling saddle horse is a question which it is practically impossible to answer. A mare which to outward appearance is just what a saddle mare should be, if descended from a generation like herself, is almost certain to produce a similar offspring from a similar sire. It is well then to know something of a mare's pedigree before setting her to the task of reproducing her kind. When her family connection cannot be traced, if she rides lightly and gives one the idea of being well bred the chances are she will not throw back to anything coarse on her own side. The texture of the coat, too, is somewhat of a guide to her fitness as a brood mare.

Strength she must have in the form of both bone and muscle, and she should not be less than 15 hands and 2 inches in height nor should she exceed 16 hands. While size generally means power, it does not follow that a tall horse is necessarily up to weight. Various experiments have been tried with the object of combining strength with fashion. Thoroughbreds have been crossed with heavy mares, and the fillies so produced have been again put to the blood sire and so on, but the results have scarcely been satisfactory, and after the second cross the progeny have come out in all sorts of shapes. What we require is an upstanding, big-boned, roomy mare got by a Thoroughbred horse and with as few admixtures in her pedigree as possible. The writer has upon several occasions visited the stables of Mr. Adam Beck, of London, who for several years has won notoriety for his green hunters up to good weights at the New York and other horse shows. As was noted in the *ADVOCATE*, he won at the last N. Y. show all the money offered in the class for green hunters. It may be mentioned just here that Mr. Beck's entire saddle exhibit was made up of horses possessing three or more Thoroughbred crosses, and the best of them might well be taken for pure Thoroughbreds from their entire conformation and way of going.

As a general rule we can go no further than to say that the saddle brood mare should possess size, strength and breeding, and even when we have these requisites there is still an element of uncertainty as to the character of the offspring, though possibly reduced to a minimum. She should also have youth about her, and not formerly have been bred to a hackney, coach or heavy draft sire, as the tendency to throw back to the male with which she was at some time mated is more to be feared than we are usually led to believe. While mares of the correct type are far from being plentiful, there can occasionally be found such dams, which should under ordinary circumstances be put into the stud to produce a class of horse for which there is a much greater demand than the present supply can satisfy. Were it possible for every would-be

breeder of saddle stock to visit the Canadian Horse Show, Toronto, he would receive valuable object lessons in the type to produce.

Views on Breeding Horses.

BY MANITOBA BREEDER.

The man who watches his neighbors rush their horses off to market, and hears them declare that their mares will not be bred this season, all because horses are low in price, has studied the history of stock or grain production to little advantage if he does not set about to cull his mares and secure the services of the best stallions that are available. It is easy to go with the crowd. Nothing is so contagious as a panic. The thoughtful man needs no prophet to assure him that there is a future for horse breeding. The croaker sings about the coming of a time when electricity will make horseflesh "lag superfluous on the stage." Old men have heard such fairy tales before. The advent of the railroads was to have utterly wiped out horse breeding, but, as a matter of fact, with their development of new territory they created more demand for horses in a day than a decade would have brought about without railroads. Electricity has supplanted the cheapest and least useful class of horses. The 1897 crop of colts will, however, be raised, broken, and marketed a long time before electricity puts an end to the demand for horses, so that there is no occasion for immediate alarm and no excuse for neglecting to mate the mares with the highest-class stallion within reach. It is certainly time to stop raising street car horses. The thrifty breeder should aim at a higher market—the breeding of drafters, gentlemen's drivers, high-steppers, carriage horses and saddlers. In times past, anything that wore hide and hoofs, if imported or pedigreed, was good enough to breed to. But two lessons of the marketplace are stern and lasting, viz., weight without quality and shape without action go begging for bids. Never was there a time when the men who remain in the horse business should look more critically to character of the sires they patronize. If farmers who are rightly situated and adapted for the business will cull out their scrub mares, stock up with good ones, and go into breeding in earnest, breeding only to first-class stallions, they will find in a short time they have hit on the right thing at the right time. But all farmers are not adapted to the business, and some are not situated so they can breed and raise horses to advantage; all such should keep clear of the business.

The present condition of the horse market is due to the fact that men all over the country have been breeding and are now breeding to horses that have not the first qualification. Ignorant of the principles of breeding, a lot of riffraff has been produced that no intelligent buyer will take at any price. The low prices obtained for this class of horseflesh are advertised all over the country, to the discouragement of those who have good horses for sale, and so prices in general are depressed.

In the States during this period the craze for trotting speed took possession of men of wealth and leisure everywhere, and immense breeding farms have been established all over the country, and every doctor, lawyer, and merchant that owned a fairly good mare became possessed of the idea that he could breed a Dexter, a Goldsmith Maid, or a Maud S., and so, with the rage for breeding a phenomenal trotter, lawyers, merchants, farmers, and manufacturers turned to horse breeding, either on a large or small scale, and behold the result!

Is there one farmer or breeder in Manitoba who is foolish enough to think that he and the country are not losers by this deplorable state of things? For do not all know that breeding a real "trotter" is a chance result—a bit of gambling luck, a fortunate ticket from a lottery whose wheel in revolution throws out a hundred blanks to one numbered card. Now and then comes a prize that trots in the "twenties" or below, and the press of the whole country heralds his fame and that of his breeder or owner; but the press, I notice, does not tell the story of the many failures; of the thousands of dollars, the years, the study that were spent in the effort to produce the one trotter, and a landscape full of colts and horses that could neither trot in "twenty" or anywhere else.

As a result of this trotting-horse craze, the individual loss, heavy although it has been, is as nothing to that which has fallen upon the country at large. This is not a cheerful outlook, but I believe it is a plain statement of the conditions with which horse breeders are now confronted. We have too many scrub horses—that's the plain English of it. We can't eat them or export them in large numbers and thus reduce the surplus, as we do with cattle, sheep, and swine. We must reduce the supply by ceasing to breed from any but the very best mares and stallions. Our breeding must be upon definite lines, for a definite purpose, and directed by intelligence and a knowledge of how to breed to fit the market. It is no longer a question of how many foals can be raised, but how to breed a foal that will be worth the raising. The business will soon right itself, but it is the part of wisdom to adapt ourselves as speedily as possible to existing conditions. There was a time when it paid to raise any sort of a horse, but that time has gone by and the present generation of breeders will not see it again.

The situation is not without some compensating advantages. We Manitobans have a good supply of the best specimens of all the desirable breeds of the world, and now that we are compelled to go slow, we shall find it a good thing to weed out and

breed up with a definite purpose in view, and I predict that the next quarter of a century will witness as great an increase in the average quality of our horses as that just past has witnessed in numbers. Every fact connected with the industry of horse breeding, every market report, every thoughtful man's judgment indicates that the demand of the hour is for skillful mating of the better class of brood mares to stallions of outstanding superiority.

Sows Eating Their Pigs.

Seldom if ever does a spring pass without one or more sows in every neighborhood devouring their newly-born offspring. The cause of this is not far to seek when one considers for a moment the food and treatment the sow has had and the demands upon her system during the time of her pregnancy. Where such a calamity occurs it will generally be noticed that the sow has been closely confined and fed upon food lacking in muscle and blood-forming substances, and these are especially demanded at this time to supply the growth of the litter within her. Corn and water are easily fed, and are often to blame for the unnatural condition, and even if some roots are added to such a diet the trouble will be little if any less liable to occur. What is wanted is a protein diet, and bran or shorts are as nearly the correct food as one can readily obtain. The eating of her offspring is due to an unnatural craving for something the system requires, and during the fevered condition of farrowing she insanely begins to feast upon the struggling mass of her generally scrawny and ill-nourished litter, the first taste of which gives her the impression that she has before her what her needs demand.

Sows or any other pregnant stock should have plenty of exercise. Let them have the run of a yard, an old clover sod or other pasture. Feed plenty of laxative food, such as oats, mill feed and the like fed in slops. Pigs will then come strong and healthy at birth, the sows will be quiet and gentle, giving a good flow of milk of bone and muscle forming qualities. A condiment of salt, charcoal and ashes within access also tends to keep the sow in perfect health. Never allow a sow to farrow where she cannot get a drink of cold fresh water.

FARM.**New Method of Planting Potatoes.**

With a large number of farmers potato growing is not a profitable branch of agriculture. Successive failures in procuring crops have led them to despair of making the line a success, and indeed if it were impossible to have better results than some have they might well be justified in their opinion. Yet if equal care were taken with this crop as with many others, despite the low price of potatoes it would, I believe, bring better results than some other lines which now have the preference.

Potatoes cannot be grown successfully on poor ground. Perhaps the all around best plan for the immediate crop and the enriching of the ground for future crops is to have the manure rotted and mixed through the ground. In this way the strength of the manure is not wasted as it is when put in the rows only. This plan is endorsed and practiced by the Guelph Experimental Farm. A common way in some localities is to open up the drills or hills and then drop the seed and then cover, first with manure, then with earth. But perhaps the least tried plan is the one which I will here describe. Instead of dropping the seed on the hard ground in the bottom of the rows, we have for the last ten or fifteen years made a practice of half filling the rows with manure, then dropping the seed and covering. This method has paid us well from the start. We never plant more than an acre of potatoes and always have a yield of from two to three hundred bushels notwithstanding years of drouth, floods, and rot. When grown in this way the potatoes are uniformly large and free from scab. The roots of the plants easily penetrate the manure and find immediate nourishment; and the potatoes find an easy growth in the soft bed where they would otherwise have to press their way in the hard soil. In very wet weather the manure drains off the water, and in dry, unless it be very coarse and strawy, retains the dampness and nourishment. Also in plowing out the crop few of the tubers are cut with the plow, being chiefly in or above the manure. Try this plan, farmers, and you will have the pleasure of digging a plentiful crop of large potatoes. A FARM BOY, Grey Co., Ont.

Practical Points in Turnip Growing.To the Editor *FARMER'S ADVOCATE*:

SIR,—In last *ADVOCATE*, in an article by G. O. Mowbray on root culture, I think there are one or two points that might be improved on. I think it is a mistake, when conditions for growth are favorable, to sow 1½ lbs. turnip seed per acre. We have grown about 10 acres per year for a number of years, and we find from ½ to a pound plenty. We think his methods of working turnip land all right up to the last plowing. That should be done and rolled down several days before sowing, when it will allow weeds to germinate. On the day before sowing, by means of the cultivator and harrow, get the land in fine condition and roll ready for drilling. By following above course we find one man will thin out double the quantity he would under Mr. Mowbray's system of thick seeding and

turning up a crop of weeds with plow to grow up with the turnips. We also think it is a mistake to make drills too high and would advise any one sowing rape to work land and drill shallow as for turnips and seed thinly.

In these days of low prices for grain and dirty farms, I would advise every farmer who keeps much stock to sow rape. If you cannot afford manure for it it will grow without. I have grown rape over 20 years with very gratifying results. I also think it is a mistake where a farmer has no manure but what he makes on his farm to put from 20 to 30 loads per acre for roots or any other crop. I think by applying less and going over the farm oftener we will get better results on the whole.

I am highly pleased with the *ADVOCATE*, especially so the last few months. T. BAKER.
Durham Co., Ont.

A Good General Stock Barn.

The new stock barn of John Jackson & Sons, the well-known breeders of Southdown sheep, illustrated from a photograph (taken from east view), is of decidedly modern pattern. It is roomy, convenient, well lighted and airy. The basement is built of quarry stone 18 inches thick. The buildings in all contain 3,250 feet of timber, running measure; 70,000 feet of lumber, and one ton of wire nails. The roof is shingled with pine shingles. The barn is 44 x 84 feet on 9 foot wall pointed with colored mortar. The corner posts are 20 feet and hip posts 32 feet. The sheep pen is 24 x 56 feet and the implement and vehicle house is 26 x 30 feet.

Fig. I. represents the plan of the upper or barn floor. The end bents of the main barn are used for hay, filled with a horse fork. The grain is put in next the drive floor by means of a rack-lifter arranged from an original design. It elevates the load 26 feet high. The pole that carries the rack up slides up grooves so that the load never swings. The load can be stopped at any desired height. The loft above the sheep pen is filled with hay. The granary is finished with hard maple and is thus rat-proof. S 1 represents the chute into the horse stable for putting down straw; S 2, high chutes for ventilation and putting down hay; S 3, straw for cattle; S 4, roots; S 5, straw or hay; S 6, for straw or hay into sheep house and for ventilation; S 7, feed for sheep.

The basement plan represented by Fig. II. is made quite understandable in the figure. It is ventilated by the chutes leading up into the barn and by the windows, each of which have eight 10x10 inch lights. D represents doors, W windows, W A water trough. The water is pumped into a six-barrel tank by a Challenge windmill. The tank house is seen beneath the windmill to the left of illustration. The water runs from the tank to troughs through underground pipes. Horses and sheep have the water inside. The cattle have to go out into the yard for their drink. H S represents horse stalls; C, double cattle stalls; B S, box stalls; B S C, box stalls for calves; F P, feed passage; B, bridge; S, stair; A A A, boxes for grain, connected with bin above; M R, movable racks in sheep houses. The sheep yards extend out a considerable distance, allowing exercise *ad libitum*.

Root Growing at the Central Experimental Farm.

To the Editor *FARMER'S ADVOCATE*:

Sir,—I have read with a great deal of pleasure and profit the valuable articles on growing roots, and would like to give my experience if space will permit. My first move is to select soil suitable. Carrots and mangels do best on a good sandy loam. Turnips require a heavier loam, tending to clay, and both should be well drained.

1. *Manuring*.—Apply about 20 tons per acre and plow under in the autumn. It may also be applied during the autumn and winter before any snow falls. As soon as the snow comes it should be left in small piles and spread in the spring, providing the straw has been cut when used for bedding, as the long straw will interfere with drilling and cultivating.

2. *Seed*.—Mangels, 4 to 5 lbs.; carrots, 3 to 4 lbs.; turnips, 3 to 4 lbs. I use plenty of seed; have some for cutworms and turnip fly if there be any, if not it is an easy matter to thin them out. [When land is in proper condition one pound good turnip seed is sufficient.—Ed. F. A.] Make drills 24 inches apart for all roots; and roll the drills down with a land roller before sowing this is a very important point for several reasons. Carrots, 4 to 6 in.; mangels, 8 to 12 in.; turnips, 8 to 12 in.

3. *Germination*.—Test your seed in a small box during the month of March. Plant in straight rows so that they can be counted, or a better plan is to send a small sample of each to the Central Experimental Farm, Ottawa, and have the germination tested there. Time for sowing carrots and mangels from 5th to 10th May.

4. *Cultivation* may be profitably sown or better

transplanted in blank spaces. But where drills are two feet apart, and the proper amount of seed sown, you will very seldom have any blanks to fill.

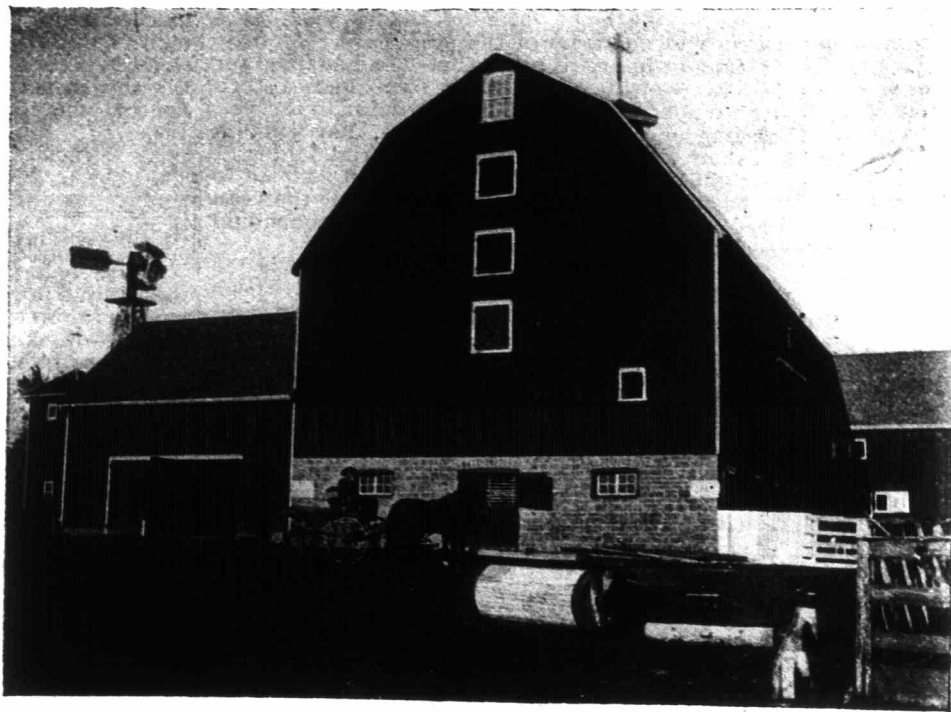
5. *Preparatory Cultivation*.—For sowing turnips, carrots or mangels, select a meadow that has been down two or three years, plow very shallow, harrow and roll as soon as possible after the hay crop is off in the autumn; if you have the manure apply it and plow again, leaving soil well set up until spring; plow again and harrow before making the drills. For sowing turnips in June, select a field with soil suitable—that requires cleaning, and has had the usual amount of clover sown the previous year; leave until about 30th May, when you will have a heavy growth to plow, using a chain to cover the clover; next roll with a heavy land roller, disk harrow thoroughly up to about 12th June, then make your drills two feet apart and sow.

6. *Pumpkins*.—Have grown pumpkins along with hill corn. Plant in every second hill and every second row. Plant just after the corn is up and has been harrowed; press the pumpkin seed in beside the hill with the thumb. I have also many times planted white beans in the remaining hills and had excellent crops. Pumpkins may be profitably fed to cattle raw after removing the seeds, also to hogs when boiled after the seeds are removed.

7. Have not grown rape, but will coming season.

8. *Carrots*.—Mammoth White Intermediate, Improved Short White, Iverson's Champion, and there are several other short white varieties equally as good. For red carrots, Guerand, Ox Heart or Early Gem. *Mangels*.—Mammoth Long Rd. *Turnips*.—Purple-top Swede, Rennie's Skirving, also Champion and Lord Derby.

Now, sir, if you will allow me to add a short note, which is of as much if not more importance than any of the former. The first day you can see the roots up in the rows, and the soil dry, pass a



JOHN JACKSON & SONS' STOCK BARN, WENTWORTH CO., ONT.

hand wheel-hoe along every drill, loosening both sides at once very close to the row, allowing the air to get into the hard-packed drill. I have often found it best to pass over them twice before the plants are high enough to use the horse cultivator. Right here is where so many fail in growing roots: they allow the plants to get high enough for the horse cultivator to work and at the same time the weeds have not been asleep; therefore it costs three times the amount to hoe and clean them, besides the great loss or drawback in growth. By this plan of close cultivation we very seldom have to hoe more than once after thinning. Keep on there be weeds or not as long as you can get through the rows, and in no case allow the soil to roll against the roots, as covering the roots will stunt their growth.

JOHN FIXTER,
Farm Foreman.

A Successful Pioneer's Varied Experiences.

"LABOR UNLESS INTELLIGENTLY DIRECTED IS COMPARATIVELY UNPRODUCTIVE."

Sir,—Were I to relate all my pioneer experience at farming in the N.-W., I fear I would have very many foolish and unprofitable ventures to narrate. However, as other people's blunders are frequently quite as useful as their successes in helping others travelling over the same road, I submit the following brief summary of both:

Located here in 1852, I built a house and stable, and prepared 20 acres of backsetting for the coming spring sowing. Owing to my inexperience in prairie farming, and there being no older settlers in the district from whom to seek advice, the seeding of this 20 acres was gone about after the usual fashion in Ontario; that is, waiting till the soil was dry and mellow, then harrow down thoroughly, depositing the seed afterwards on this level, garden-like surface. Imagine my surprise when I found on examination that the wheat kernels, with few exceptions, remained in the soil as dry as shot,

evinced no notion of germination whatever till the first rains came about June 15th. As this was practically equivalent to sowing on that date, of course it resulted in my first venture at wheat growing in the N.-W. as a discouraging failure—the crop being frozen. Although there was plenty of it, I noticed, however, that in a low portion of the field, where it was so extremely wet and boggy at time of sowing that I never expected it to come up there, the wheat was magnificent, ripening in good time before any frost. This convinced me that the field would have been all like this had the seed been put down to the moisture, so that germination would have ensued immediately.

Profiting by this lesson, in the following year ('84) I had a fine crop of No. 1 hard wheat, yielding 32 bushels per acre. Notwithstanding this success, I still felt that a sole reliance on the production of one crop (wheat) in a country where it got so dangerously cold in August was an extremely precarious method of farming, so I shipped up from Ontario a car of settler's effects, including a team of working horses, eight good grade cows, one Durham bull, six sheep, one pig, and twelve hens. With such an equipment, I fancied I was "heeled," but alas! man's wants never seem to be satisfied. What use were all these cows, I reasoned, with no provision for utilizing their products? The sheep, too, persisted in wandering away at lambing time, and if I left home for a day the old sow was sure to be hoeing up the garden on my return, and so it gradually dawned upon me, for the first time, that it was not good for man to live alone—especially on a farm—so I got married. It is quite possible to "batch" and farm successfully, but such success is bought at too dear a price for me.

In those early years, hay, pasture, and water were so abundant that stock of all kinds grew and throve like weeds. My herd of cattle soon increased,

and the products therefrom enabled me to get a start and keep out of debt until such time as I could gradually buy the necessary machinery and bring more land under cultivation. The dry seasons of '86, '87 and '89 which followed introduced a new condition of things. The ponds went dry, and with the water the once abundant supply of native hay disappeared, the country had settled up thicker and this necessitated the herding of our cattle. To aggravate the difficulty the price of butter and beef in the meantime had greatly declined. All this tended to make the stock industry less profitable and to turn our attention more and more to the products of the field. Besides which the superior quality of the hard wheat grown in the Qu'Appelle district ensured for us a brisk cash demand for all that article we could produce—that could then be said of no other staple product of the farm. Thus we saw ourselves gradually drifting away from that supposedly ideal system of husbandry known as "mixed farming," to be producers of wheat only, for the good, and, I think, sufficient reason that under the altered circumstances to which allusion has been made wheat was the only product one could rely on to raise ready money

with; in fact, if a note or any debt had to be met on short notice, it was always the wheat bin that was looked to to relieve the pressure. Remember, I have nothing whatever to say against the principle of mixed farming. It is quite as good in practice as in theory, provided the conditions favorable to its realization are present. But it would be no more foolish, for the sake of carrying out a theory, to attempt the successful cultivation of wheat out on the western cattle ranches than it would be to attempt in a wheat district to profitably engage in dairying or beef production, with no hay or water for miles around.

But wheat was not allowed to remain sole king in many farmers' minds for very long. In 1894 the price of No. 1 hard dropped to 40c., and although those unencumbered by old debts could produce it even at that low price at a small margin of profit, still many who had gotten behind in the early years found it up-hill work to live and pay debts on wheat at that figure. The prices of '95 and fore part of '96 proved little better. Fortunately good crops prevailed, as a rule, during these years, or the lot of the average wheat grower would have been anything but an enviable one indeed. What was to be done? I could never see any money in hogs under 6c. (even with wheat so cheap), and dressed pork was only 5c. then. Besides, dairying and hog production should go hand in hand or else the latter will be comparatively unremunerative. I had already tried cattle, and was obliged to abandon them through force of unfavorable conditions. Could these conditions be so artificially changed as to admit of dairying and other kindred pursuits? The lack of water and hay were the two great obstacles in the way. I found on inquiry that the Moose Jaw farmers got over the water difficulty by excavating large reservoirs in blind sloughs or other depressions. These were fenced with rails to catch the snow, which, on melting in the spring, gave them an abundance of water the year around. I tried this plan and found it entirely successful. Then, as for the hay problem, two years ago I seeded

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down five acres of Austrian Brome grass (introduced into the West by the Experimental Farm); that grew so luxuriantly, making not only capital hay, but Al pasture as well, that I felt convinced that the way was now open to again engage in mixed farming, not for the sake of the theory only, but also for the profit. With this aim in view, I last season took the necessary steps to provide good stabling accommodation for 40 head of cattle (have but 7 now) and 16 horses by building a large stone stable 77 x 35 feet, costing, without any superstructure, over \$800. All being well, I purpose building a dwelling house of the same material (estimated cost \$2,500) during the coming summer, and have now on the ground 200 loads of stone for that purpose.

All this changing would seem to indicate a fickleness of purpose and lack of stability indicative of anything but success, but the fair measure of prosperity that has been my portion since coming here may be attributed largely to the practice of changing one's tactics to suit altered circumstances and better methods as indicated by past experience. I have also found that if the following points are carefully observed it will materially enhance one's chances of success on a prairie farm:

1. In as far as it is possible make a practice of paying as you go or else not going.
2. Make haste slowly, observing the methods of tillage, etc., pursued by the successful men in your district.
3. Provide the best farm labor obtainable, and pay good wages.
4. Keep up with your work.
5. As far as practical make all improvements on the farm permanent.
6. Take no chances fooling with intoxicants, you will require all your wits and small change on the farm.
7. Sell your wheat in the fall and pay up your debts.
8. Don't worry. "What cannot be cured must be endured."
9. Remember it is much easier to keep a farm free of weeds at the outset than rid it after becoming once foul.
10. Take an agricultural paper.
11. Contribute liberally to religious and charitable institutions.

That a farmer should be industrious goes without saying, but hard work does not always mean progress. Labor unless intelligently directed is comparatively unproductive. There is no profit in slaving one's self to death—at it early and late as if man was made for the sole purpose of working. If many farmers would put their thinking-cap on oftener it would be found that they could live and enjoy life more like those engaged in other occupations and less like beasts of burden. More education, especially along those lines pertaining to agriculture, and less whisky-drinking and idleness, would undoubtedly prevent the breaking down of many farmers that are not succeeding. Without going into details as to my present financial standing and possessions, I think I may lay claim, with due regard for modesty, to have succeeded very well in this western country, and that in the face of the many disadvantages incidental to pioneer life.

With the way to overcome many of these natural disadvantages opened up by the results of practical experience and the prospect of not the least of the artificial ones (the high tariff) being removed, or at least modified by legislation, at no distant date, the future agricultural success and prosperity of this district is almost assured. The advance in wheat has stimulated the already healthy tone in business circles, while a feeling of confidence pervades the country in general, such as is suggestive of peace and plenty. Even at this distance from a railway (20 miles north of Indian Head) the vacant C. P. R. lands are being gradually bought up by actual settlers, no less than nine quarter-sections in this school district being taken during the past few months. Of course, I could put up with being nearer a railway, but we look confidently forward to the time when this difficulty also will be removed. This country undoubtedly has its drawbacks, but withal it's good enough for me. There are many other important matters that should receive more attention on the farm, such as planting trees, shelter belts, small fruits, etc., which, while not yielding any material direct profit, should certainly be looked upon as contributing largely towards all-around successful farming.

Abernethy, N.-W. T. W. R. MOTHERWELL.

Depth of Covering Seeds.

As a general rule, the smaller the seed the lighter should be the covering. We are very apt to cover too deeply. Onions, parsnips, squashes and lima beans, such plants, especially, as push up the shells of the seed itself, find it difficult to force their way up through much depth of earth, after it is packed down by rains. A quarter, or half an inch at most, is quite sufficient for these seeds.

Care should be taken that no lumps of earth should be left over them. We like long rows of beets, carrots, parsnips, etc., and don't believe in wasting half the land in useless paths and walks with short rows running crosswise. Long rows are more easily worked and kept clean than short ones, and the labor for the same number of plants in long rows is less than in short ones.—*Massachusetts Ploughman.*

DAIRY.

"Elixir Compound"!

ANOTHER HUMBUNG BROUGHT TO LIGHT—BUTTER FROM SKIM MILK—A DAIRYMAN DUPED THROUGH A NEWSPAPER ADVERTISEMENT—OFT REPEATED WARNINGS DISREGARDED.

It is positively astonishing, as well as lamentable, in this day of boasted enlightenment, how many fake schemes of one sort and another, under various guises, are hatched to humbug farmers and others by means of the pretense that "something is to be got for (or from) nothing." About six

in a bottle; one teaspoonful to be used to a quart of milk, and a large spoonful to a gallon of skim milk; color with yolk of egg or Spanish annatto.

I was assured that I could get \$5 or \$10 for the recipe in my own locality. I invested fifty cents more getting the drugs. I forgot to say above that there were no directions how to prepare the milk for churning—whether to sour or not—so I went on and tried it without, but failed completely to get anything. I wrote to the party for directions, but have never received any reply, as he evidently does not believe in wasting postage. I intend to try again by souring the milk, as with cream, for churning, and will let you know if I obtain any better result; but fear that the thing is a swindle, and you may use this letter as a warning to others, but need not give my name. I must freely admit that I have myself to blame, because I have read repeated exposures and cautions against such things in your paper, but I can assure you I will not be bit again.

Yours truly,

P. O., Ont.

[NOTE.—We would advise our correspondent to waste no more time or milk with his recipe, for it is evidently an unadulterated humbug, and if he did make some product that "looked like butter" he would be defrauding his customers by selling it. He may not be aware that the investigation and exposure of such frauds as the above, and the rejection of questionable advertisements, costs the FARMER'S ADVOCATE many hundreds of dollars, not to mention trouble, but we consider our efforts well spent. If any genuine discoveries in dairying, or any other branch of farming, are made, our readers may depend that the facts will be made known in these columns without delay.—EDITOR.]

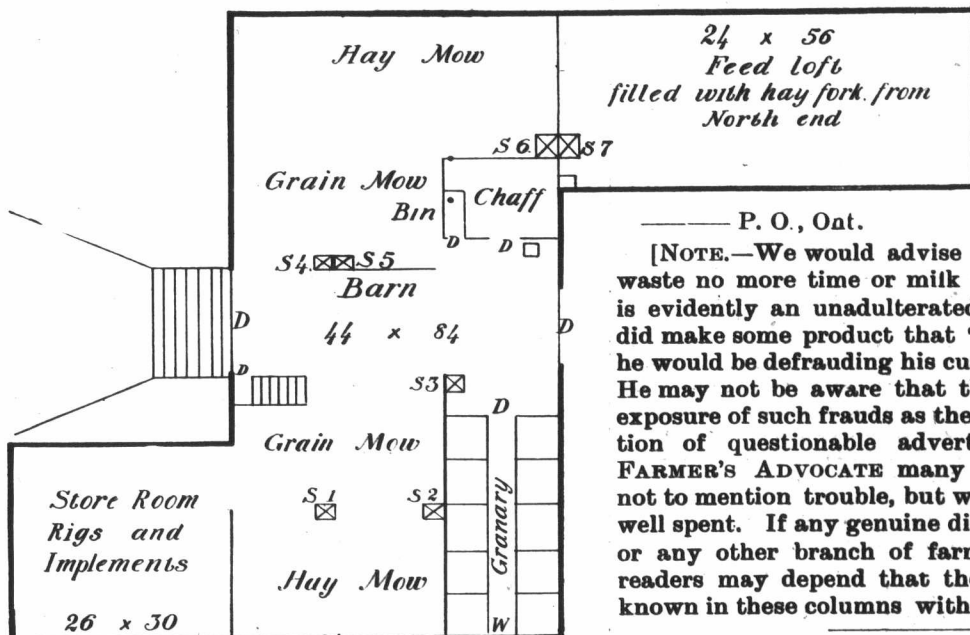


FIG. I.—UPPER BARN FLOOR PLAN.

weeks ago a small, innocent-looking (typographically) advertisement appeared in one of the foremost newspapers of Toronto, according to which a recipe was offered for \$2 whereby one pound of butter could be made from a quart of milk or from a gallon of skim milk. We were surprised that the paper in question would, without proper scrutiny or advice, give space to such a transparent humbug. The advertisement bore the signature of "O. H. Mason," the address being a small town in northern Wisconsin, which, by the way, lays some claims to being an advanced dairy State. How many Canadians were duped into sending their \$2 to this precious scam will probably never be known, because they are usually reticent, but one at least

The Chemistry of Milk, with Particular Attention to the Relations between Milk Fat, Casein, and Yield of Cheese.

[From a paper read by A. E. Shuttleworth, Professor of Chemistry, Ontario Agricultural College, at Cheese and Butter Makers' Convention.]

It is very natural, in response to this universal dairy stimulus, that there should be a demand for an improvement in the quality of milk. Numerous methods for the estimation of fat in milk have been proposed during the past few years. But for a time it appeared that there was no practicable method for use where it was most needed, i. e., among practical dairymen in creameries and factories. Here, where a large number of tests must be made, economy of time and money, and simplicity of manipulation, must be combined with accuracy. Dr. S. M. Babcock's new method for the estimation of fat in milk, given to the public in July, 1890,

appeared to combine all these necessary requirements, viz., economy, simplicity, and accuracy. The inventor's "hope that it may benefit some who are striving to improve their stock and enable creameries to avoid the evils of the present system" was speedily realized.

The evils of the present system above referred to existed also in cheese factories. There is a difficulty, however, presents itself in avoiding these evils in cheese factories. The constituent of milk, known by the name casein, which constitutes a large part of cheese, does not admit of easy estimation. By chemical processes, however, in the hands of a chemist, involving considerable time and expense, it can be done with a remarkable degree of accuracy. Dr. Van Slyke, Chemist, New York Agricultural Experiment Station, Geneva, New York, was led by his investigations relating to the manufacture of cheese to advocate the use in cheese factories of Dr. Babcock's new method for the estimation of fat in milk. It has during the last two or three years been introduced into many cheese factories, both in Canada and the United States. This is a step in the right direction; and the time is coming when Dr. Babcock's tester will find a place in every factory probably throughout the length and breadth of the land. The ground upon which Dr. Van Slyke unhesitatingly recommends its use in cheese factories is undoubtedly his firm belief that the relation of fat to casein in mixed factory milk is sufficiently constant to make fat alone an accurate guide in regard to the amount of cheese that can be made from milk. He says: "Two, and only two, constituents of milk influence and concern the production of cheese, so far as the composition of milk is concerned. These two cheese-producing constituents of milk are fat and casein. The other constituents of the milk, such as albumen, sugar, etc., pass into the whey for the most part and are lost so far as the cheese is concerned. The question may be raised that the cheese contains water in addition to fat and casein.

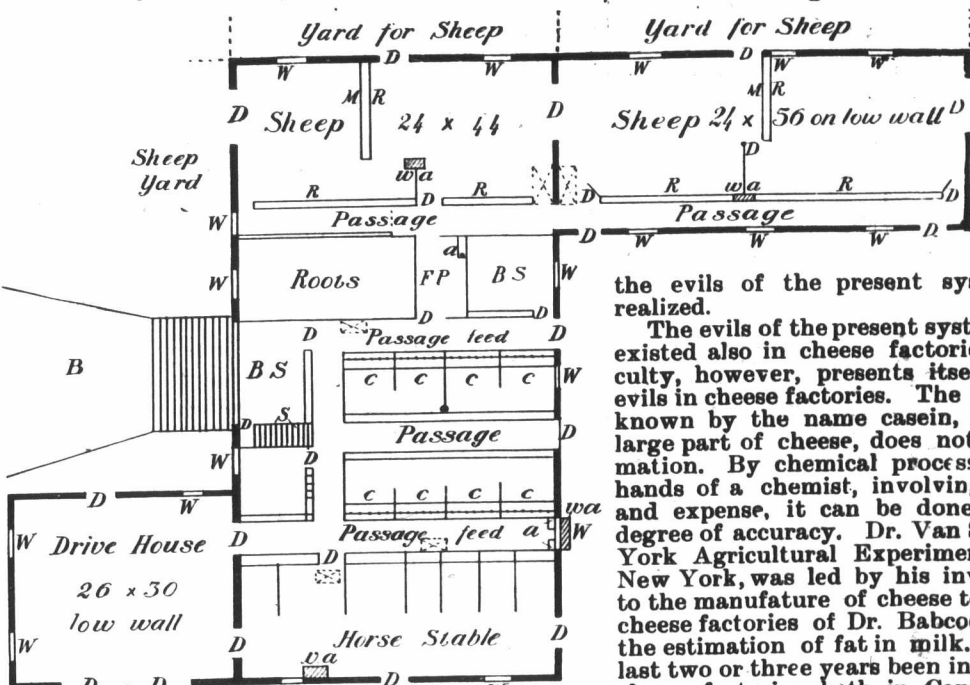


FIG. II.—BASEMENT PLAN.

has owned up to being "taken in," as the letter given below discloses. He writes to warn others from falling into the same or a similar trap, but requests that his name be not divulged, with which we comply:

To the Editor FARMER'S ADVOCATE:
 DEAR SIR,—I saw the enclosed advertisement in the _____, of Toronto, a short time ago, and thinking that something really new in buttermaking had possibly been found out, I concluded to send for the recipe, which I did, and in eight or ten days it came to hand in very clumsy handwriting, and headed, "The Name of Mixture is Elixir Compound—Recipe for Buttermakers." It was composed of certain quantities of pulverized alum, gum arabic, pepsin and cream of tartar, mixed, and put

The amount of water retained in cheese is quite independent of the amount of water in the milk from which the cheese is made, since the amount of water that is retained in cheese is dependent upon the conditions of manufacture, and the cheesemaker has it in his power to retain more or less water in the cheese. Therefore we need to consider, in this connection, only the fat and the casein of the milk as the cheese-producing constituents of the milk."

Remembering the importance of casein, as well as fat, in determining the cheese yield of milk with other important facts, viz., that there is no practicable method for making a direct determination of casein in factories, that the fat basis is much the fairer and clearly preferable to that of only weight of milk, that numerous analyses (made chiefly at the Geneva Station) showed about two-thirds of casein for each pound of fat in milk, it appears perfectly clear that the Babcock tester can render valuable service in cheese factories as well as in creameries.

It must not be forgotten, however, that in most instances improvements come gradually. The introduction into cheese factories of the fat basis is a great improvement on the old method of paying for milk. But the method as introduced, while fairer and clearly preferable to the old method, is not so absolutely faultless that it is above criticism.

There appears to me no doubt that the fat basis was a step in the right direction. The question now to be considered is whether a modification of the fat basis should be made; however, such a consideration must not be regarded as an attack upon the fat basis. At this point attention might be called to the fact that during the cheesemaking seasons of 1894 and 1895, while Prof. Dean was conducting his cheese experiments, now familiar to you all, we made in the chemical department a careful and rather extensive study of the relation between butter-fat and casein by exact gravimetric analysis of the milk upon which Prof. Dean experimented in the dairy department. Details of this work have already appeared in the annual reports of 1894 and 1895. The chief facts brought out may be mentioned.

In 1894, for each of the seven months, we found less casein to each pound of fat in the rich than in the medium milk; and, taking Prof. Dean's yields of cheese and our determination of fat, we found also less cheese to each pound of fat in rich than in the medium milk. The averages for the entire season of 1894 are: in 3.243 per cent. milk, 1 pound butter-fat to .66 of a pound of casein, and in 3.890 per cent. milk, 1 pound butter-fat to .59 of a pound of casein. The difference in the yield of cheese to each pound of fat is .24, practically one-quarter of a pound. We found, taking all results, a relative increase of .023 of a pound of casein for each increase in fat of .1 of a pound.

During the following seasons the investigation was continued upon the same line; but the analysis covered a great many more samples of milk. In addition to those taken from our home dairy, samples were also taken from two neighboring cheese factories. The results, in every particular, confirmed those of the previous season. The season's averages gave: in 3.215 per cent. milk, .74 of a pound of casein and 2.783 pounds of cheese, and in 4.093 per cent. milk, .62 of a pound of casein and 2.497 pounds of cheese to each pound of butter-fat. The difference in the yield of cheese to each pound of fat for the second season was .28. We found a relative increase of .021 of a pound of casein for each increase in fat of .1 of a pound. In this connection it may also be mentioned that the relation of fat to casein in the milk of individual cows was studied during the last season. Here also the same fact was borne out, viz., that casein in milk tends to increase when the fat increases and decrease when the fat decreases; and that for every increase or decrease of a .1 of a per cent. in fat there is a corresponding increase or decrease in casein of between .02 and .03 of a per cent. Dr. Van Slyke, during the season of 1895, conducted a valuable and extensive investigation, quite similar to this, the results of which I have just given.

Our investigation in the chemical department was chiefly upon the milk of one herd of cows, two samples of milk being secured upon each of three days every week, making six samples a week; while Dr. Van Slyke's investigation was upon the milk of 50 herds, samples being taken once from each herd every alternate week. In these two investigations, made in different years, in two distinctly different places, and quite independently of each other, there is an exceedingly interesting variation of the same experiment.

To what extent do our results and Dr. Van Slyke's agree? Dr. Van Slyke found an increase of .1 per cent. of fat accompanied by an increase of .024 per cent. of casein. We found for the same amount of increase in fat, .023, in 1894, and in 1895, in the milk of the whole herd, .021, and in the milk of individual cows, between .02 and .03. He also found by the same investigation, .25 of a pound of cheese less to one pound of fat in a 4 per cent. milk than in a 3 per cent. milk. We found for the same amount of fat in 1894, .24, and in 1895, .28 of a pound of cheese less from the rich than from the medium milks. There is then an almost exact agreement between these results. Practical dairymen may now ask, what then are your conclusions? My reply is this: the relative quality of the cheese from rich and from medium milk, as compared or estimated by the respective prices they command

in the open markets, must determine whether the milk fat as a basis is sufficiently fair to all who together furnish milk to a cheese factory. Chemical science can determine the relation between fat and casein in milk, between fat in milk and yield of cheese; but it cannot fix prices for which cheese will sell or for which milk can be purchased.

If the quality of cheese thus estimated pronounces the milk-fat basis a little too severe upon the less fortunate patron, then the milk-fat basis may be modified, not displaced; and the modification, if it does come, will undoubtedly be based upon the relation of casein to fat in milk. The addition of 2 to the fat reading does not recognize that casein increases when fat increases, and, therefore, in a 3 per cent milk allows payment for nearly all the casein contained, while in a 5 per cent milk allows payment for only 74 per cent. of it. If the production of a better quality of milk is to be encouraged, and if the milk-fat basis unmodified is too liberal to the patron who furnishes rich milk to be fair to him who furnishes even medium milk, then the modification should have exactly the opposite effect, viz., to allow payment for all the casein in the rich milk and for only a certain portion of it in the poor milk. It has been advanced in support of the justice of adding 2 to the fat reading of milks of all degrees of richness that the loss of fat and casein in whey increases with increasing richness of milk. But we have found by extensive analyses of whey that there is contained a higher percentage of fat and casein of the total fat and the casein of the milk in the whey from the medium than in the whey from the richer milk. Similar conclusions have been reached in several of the leading American experiment stations.

Cost of Butter Production.

Mr. W. C. Shearer, Oxford Co., Ont., the well-known Jersey breeder, has made a study of the cost of production, and at present is milking some 24 cows which freshened in August and September last. During that period were fed each daily 2 bushels green cut corn with 7 lbs. bran, divided into two feeds; also whatever pasture they could pick; and he is able to report the butter produced at an actual cost of less than 5 cents per pound. Under the winter system of feeding the cost is 11 cents per pound. The winter feed consists of ensilage, pulped mangels, bran, oil cake, and ground grain (oats and peas); ground grain, 5 lbs.; bran, 4 lbs.; oil cake, 2 lbs. per day, mixed with ensilage. The system of feeding the hogs is as follows: Whole mangels at noon; boiled turnips night and morning, mixed with a mixture of ground corn middlings, 1 pint; bran, 1 pint, with skim milk from the separator. In this way he has been able to produce pork for 14 cents per pound on animals under 100 lbs., and over that weight at 23 cents. The pens are well-lighted. Mr. Shearer's dairy is complete in details. Its sanitary arrangement appears perfectly equipped with all modern improvements, the separator and churn being run by tread power. After separation the cream is run through the aerator, twice in winter and four times in summer, and then placed in the cooler. The churning is done twice a week in winter and three times in summer. Taking it all in all, his dairy is now equipped to produce as fine a quality of butter as any establishment of equal capacity in the country, and the products will eventually reach consumers who will appreciate the results of such labor and enterprise, and who will be willing to pay for them what they are worth. Mr. Shearer does not hesitate in stating facts concerning the financial income of his establishment, and says that on his cows he has a monthly income of \$142, on swine \$50.

APIARY.

No. 4.--Spring Management.

BY A. E. HOSHAL, LINCOLN CO., ONT.

No matter how excellent our appliances and correct our system of management, all goes for naught if we have not good strong colonies at the beginning of the honey harvest in June, and to accomplish this is the whole object of spring management. This means that during the spring all our efforts must tend toward the most rapid brooding of our colonies practically possible. To accomplish this the following conditions are necessary: (1) Good prolific queens; (2) good wintering; (3) abundance of stores; (4) warmth; and (5) severely letting alone. The first two of these should always be attended to during the summer and fall previous, and if neglected then they cannot be remedied in the spring. The third should likewise be attended to in the fall. Occasionally, however, a colony will consume an abnormal quantity of honey during the winter, or, perhaps, by oversight may have been missed or neglected in the fall, and so will have to be fed in the spring. There are several ways of doing this, but it will be best done if such colonies be given one or more, according as they need, combs of honey, by removing the empty combs and inserting in their place full ones. If such are not to be had empty combs can be filled with sugar syrup and given them. To fill an empty comb place it on its side in a large bread or other pan. Having the syrup nearly milk warm, with a pitcher or tea pot held from two to three feet above the comb pour it in a stream about the size of a small straw over the surface of the comb until the cells are full; reverse the comb (the syrup will not

drop out of the inverted cells unless shaken or jarred) and in like manner fill the other side. When filled it will be quite mussy, but when given to the bees they clean it up with evident satisfaction. Spring feeding at best, however, is a mistake and the result of accident, mismanagement or neglect. In the fall, when preparing bees for winter, they should then be given sufficient stores to carry them through the spring as well as winter.

Every colony during the spring must have its own heat thoroughly economized and be protected from outside changes of temperature as far as possible. To do this contract all entrances to about $\frac{3}{8}$ to $\frac{1}{2}$ of an inch and shut off all ventilation except the entrance, especially seeing that all hives are snug and tight around the top. Colonies that are very weak will be placed at an advantage and helped much if their hives be contracted so that they are able to cover all their combs. Protect all colonies with an outer case and packing if such are to be had so that they will not be affected by outside temperature. Colonies wintered outside will, of course, be already packed. With colonies wintered inside all these matters should be attended to as soon as they are placed on their summer stands, had a cleansing flight, and quieted down; and those wintered outside, as early as weather will permit.

Everything that a colony requires to have done should be accomplished with but once opening it, and the necessity of even this must always be considered as only the result of an accident or mismanagement. Attend rather to all these internal matters of the colony in the fall. In an apiary that is properly managed all that is necessary to be done in early spring is, with colonies wintered outside, to stop ventilation and contract their entrances, and with those wintered inside to place them on their summer stands, stop ventilation, contract their entrances, and where practicable protect with packing; further than this leave all severely alone until they begin to crowd their winter quarters and require more room.

Do not attempt to stimulate brooding through feeding, uncapping honey about the brood, spreading brood, etc. Such operations, if successful at all, are only so in the hands of the most expert; I doubt if they are even then, and at best they are not producing honey with the least expense of time and labor.

The time for setting bees out which have been wintered inside depends on circumstances. If they are to be thoroughly protected with packing all about them, then the first fine day after the 15th or 20th of March when they can fly is none too soon, but if not thus protected I would rather leave them in the cellar until the middle of April or about the time the early willows and soft maples come into bloom. However, should they show signs of wintering badly by soiling their hives, becoming restless and flying out much in their winter repository, they had then best be set out on the first fine day, given a cleansing flight, and then returned to their winter repository again. In such a case when they are set out permanently the second time be careful to place each colony in the same place it occupied on the first occasion.

About the middle of fruit bloom to the first of June, when they are beginning to crowd their winter quarters, the packing will have to be removed and the hive expanded according to the needs of each colony. Those that have wintered in contracted brood chambers will now have to have them expanded to their full capacity, while those occupying full-sized ones and are crowding them will require to be given a surplus case. In expanding the brood chamber of a Langstroth hive never place the combs that are added between the brood, but always next the side of the brood chamber. Bees sometimes swarm in May for want of room; this should never be allowed to occur. Those who brag of their early swarms, especially in May, proclaim their ignorance rather than their success.

Colonies carelessly opened and disturbed in the spring before fruit bloom not infrequently ball and kill their queen. If you are anxious to watch the development of your colonies, to learn their manner of working, habits, etc., select one or more for this purpose, and do not be constantly mauling and disturbing all you have, especially about their brood nest.

To determine if a colony has sufficient stores do not open it, but heft it, and if suspiciously light weigh it.

Colonies that are not packed about the top should never have their covers removed if it can be avoided. They will not be sealed down tightly again and so will allow much heat to escape.

Do not unite weak colonies in the spring unless queenless, nor give them brood from strong colonies to build them up. Do the best you can with each upon its own resources, then if desirable unite just before the honey flow in June.

Robbing started in early spring will in all probability prove disastrous to some colonies. Keep all entrances well contracted, covers tight, and use extreme care should any hives have to be opened.

It is an advantage for colonies to stand in the sun during the spring, but they should be shaded during the heat of summer. These varying conditions can be obtained by means of a shade board.

As the spring is now here many no doubt have decided upon this to give bee-keeping a trial, and are now considering the purchasing of bees. As to how much one should pay for them I leave each to decide, but I wish to draw attention to a serious and sometimes fatal mistake that is often made at

this very decide upon which you use the making a handicapped start into are domiciled are after bees in them and have him 'round be especially too much Italian q introduce Italianize experience not posse the native builders a nicer and

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this very point. Before purchasing bees *always* decide upon the system of management and hive which you will use, and in your selection of these use the *utmost* care, for in proportion as you fail in making a wise choice in these will you ever after be handicapped thereby. When purchasing bees to start into bee-keeping they are dear as a gift if they are domiciled in an impractical hive unless they are afterwards transferred. If you cannot buy bees in the hive of your choice, better far obtain them and then send them to some bee-keeper and have him put swarms into them for you. For all-round bees I would recommend the pure Italians, especially for the beginner. However, do not pay too much for them when buying so long as a good Italian queen can be bought for one dollar and introduced to any colony of bees, which will be Italianized in a few weeks thereafter. As you gain experience you will find, too, that the Italians do not possess all the points of excellence, but that the native black bees rather excel them as comb builders and will finish up section honey somewhat nicer and whiter than the Italians.

POULTRY.

A New Canadian Egg-Exporting Industry.

There has recently been established in London, Ont., an egg packing and exporting house, being a branch of the firm of Thos. Robinson, Sons & Co., London and Hartlepool, England—perhaps the largest egg-importing firm in Great Britain. The Company's London (Eng.) representative, Mr. T. Scott, has had charge of constructing and fitting up the Ontario branch and arranging for a supply of eggs for the coming season. After Mr. Scott's departure to England, which will be in a few weeks, the oversight of the work here will be under the management of Mr. Benj. Higgins, of London, Ont., who has for many years conducted a successful business in butter and eggs in that city.

The cement vat capacity for pickling eggs for next winter's trade is 125,000 dozens, which Mr. Scott informed us would be secured before May 1st. The pickle is prepared by adding lime to brine. Once the vats are filled to the desired capacity, weekly shipments of fresh eggs will commence to their English headquarters. The supply of eggs is to be derived from within a radius of from 60 to 80 miles of London. When the eggs are received they are paid for at market price, and sorted over. They must be fresh, of good size (eggs sell by weight in England), and those of brown color are preferred. Lots of uniformly large size and rich color command a price above the ruling market figure, while those of inferior size and appearance are not desired at any price. At this season the eggs as they arrive at the packing house are rapped together to determine their soundness of shell, and those that are cracked are sold locally along with those of inferior size for five cents per dozen. Later in the season they will all be candled. Mr. Scott remarked that there is no profit in sending small eggs to England, because European countries place them on the London market at 7 cents per dozen. Mr. Scott was very emphatic when referring to the importance of quality in eggs to be exported to England. He is confident that if only good fresh eggs of large size and rich color are sent to the English people they will take all we can send them at good prices. Choice French eggs command the highest price in England, and if we will, as we can, supply eggs of equal value, we will create a demand that will not be readily satisfied. Mr. Scott likened the egg trade to the cheese trade. English people recognize and appreciate a good thing and are willing to pay for it, while inferior goods will not bring their value, because there is so much competition in those lines. Mr. Scott heartily endorsed the principles laid down by Mr. J. E. Meyer, in the *FARMER'S ADVOCATE* for April 15th, in favor of infertile eggs, but said it was beyond their reach to obtain any quantity of them. With regard to the new system of Government cold storage, Mr. Scott considers it will only be of service to egg shippers in the hot months of July and August. He is opposed to cold storing eggs except when absolutely necessary, because dealers are very much inclined to hold for higher prices while a slow but sure deterioration is continually going on. Another objection to cold storing eggs is that when removed into warmer air they sweat and soon go off flavor as well as look mottled and stale. When eggs are taken from cold storage they should be gradually warmed up to the outside temperature to prevent the accumulation of moisture on their shells.

The points which we should take from the above reported interview are: 1st. Only such hens should be kept as will lay large eggs, preferably of brown color. 2. Eggs should be gathered fresh every day, and they are altogether better when not fertilized. These points can be observed in the practice on every farm with greater profit than the usual indifferent methods.

Wood Floors Not in Favor.

The *Farming World*, Edinburgh, Scotland, in reproducing Capt. A. W. Young's treatise on poultry keeping in the *FARMER'S ADVOCATE* of March 15, 1897, refers to the Captain as an "American gentleman," forgetting that the term "American" is by many applied to citizens of the United States of America, while Capt. Young is a Canadian, and Canada, we might observe, covers an area of North

America just about equal to the Republic. The point we desire to bring out, however, is the opinion that the *Farming World* expresses regarding the Captain's leaning towards wood floors:

"Board floors are not an unmixed blessing for poultry houses, as, if great care is not taken, rats gain a lodgment underneath, and then woe betide young chickens. We take this part of the Captain's interesting communication with a grain of salt, as it is only a proposal. If the location is a dry one, and the earth floor kept covered with short litter or peat moss, as it should be, colds from that source should be unknown. We are decidedly in favor of a floor formed of a good layer of broken stones, covered with a mixture of lime and ashes, well rammed down, and then covered with a layer of dry, sandy soil, this also to be beaten as fine as possible, receiving a final dusting of lime and sulphur. Such a floor is a great preventive against fleas, whilst wood encourages them."

How Much to Feed 30 Hens.

BY M. MAW, WINNIPEG.

A subscriber asks the quantity of food by bulk and by weight necessary for a pen of 30 hens. It is a hard question to answer, not knowing the age and variety, but as I am continually asked similar questions, I will write what I consider the best plan to secure a supply of eggs during the winter months, which, I presume, is the object of the enquiry. The first step is to decide the variety of fowls you think will best answer the purpose. I am often asked which is the best variety to keep. I have my preference, but so have others; and you will find all the useful varieties have points of excellence, and if properly managed will well repay the trouble and expense bestowed on them. Which ever variety you decide to keep, see and get the best. It costs a little more at the start, and many object to pay the fancy prices asked by breeders for fowls that are only worth market price when killed, but recollect you are laying the foundation of your future stock, and if by getting a fine cockerel or trio you can add one pound weight or a few dozens of eggs to each of their produce, you are getting well repaid for your outlay. In commencing your flock, keep only one variety, and whether it is to be pure-bred or grade, try and get them uniform in size and color. Hatch chickens early in the spring, and give them the best attention, feeding early and often. Force them along. These early pullets are the ones that will lay during winter, and when you have once got into the system of early hatching, you will find it easy work. The early-hatched pullets will be the early sitters the following spring, and will lay well during the summer, molt early in the fall, and as year-olds do their share towards filling the egg basket. They will, as a rule, continue to be your best hens; but it is not advisable to keep hens over two years; they usually incline to fat and are hard to keep in laying condition. In feeding, you must use judgment, and study the flock. The first step will be to separate the pullets from the old hens. Give them good, clean, comfortable quarters, plenty of light from the south and east, moderately warm, and plenty of litter to scratch in. A large, low box filled with ashes or dry sand is necessary to enable the fowls to keep clean. It answers the same purpose that soap and water does to us. The morning feed should be given as early as possible. It should be prepared the previous night, of table scraps, potatoes and other vegetables boiled till perfectly tender, then thickened with shorts, bran or any other meal you may have handy; covered over and left to steam during the night, it will be in good shape to feed early in the morning. Feed on boards or small troughs. Give what the hens will eat up clean and quickly. Never leave any of this food on the floor; it easily sours, and is then very offensive to the fowls. If you find your fowls have loose droppings, discontinue for a few days, or feed alternately scorched grain (oats preferred), always being careful not to overfeed. During the morning throw a few handfuls of small grain in the litter and keep the hens scratching. Exercise is very necessary; it causes a circulation of the blood and promotes health. I always hang a cabbage for my fowls to pick at. A swede turnip cut in two and thrown on the ground is equally good. In the afternoon, just before roosting time, give a full feed of grain. The nights are long in winter and they require good grain for this feed; during the long hours the process of grinding this food goes steadily along. A great necessity is a good supply of sharp grit. The gravel in this country is generally round and needs breaking to get sharp edges. A great many people overlook the supply of grit. I have had fowls sent to me to ascertain the cause of death, and on opening the gizzard not one particle of grit was present. Now, it is impossible for a hen to properly digest her food without grit. It answers the same purpose as our teeth, and if neglected will result in numerous diseases, and there will be no eggs. Another necessity is a plentiful supply of good clean water. If your house is very cold warm the water, they will get what is necessary before it freezes up. To insure a good supply of eggs follow these instructions; if possible give a little green cut bone every other day. Hens during the summer are continually getting grubs, flies, etc., and need something similar during the winter months. Bone meals are so cheap that it is foolish to be without one. A good mill that would answer the requirements of 30 to 50 fowls can be purchased in Winnipeg for \$8.00,

and will pay for itself in the extra food it supplies that could not be utilized any other way. It is impossible to give exact weights and quantities in feeding. Study nature. During the summer the hen is continually on the move, getting a grain now and again, never overloading the crop. If we can so arrange during the winter months to keep them in the same conditions, they will keep healthy and lay plenty of eggs. Be careful not to overfeed, more failures are caused by overfeeding than by underfeeding. When you see the hens all huddled up in a bunch, miss a feed or two, and if they come running up when you open the door catch a few of them and feel their crops. I have had hens that always were ready for feed, and on handling found their crops ready to burst. In every flock of pullets or hens you will find some that will eat quickly and get more than their share. When I find a pullet doing this I put it in with the old hens for a few days. Do not be continually running out with dainties after they commence laying. It is a sure way to stop them. Feed good plain food in moderation. Make them work, and if you have no eggs it will be because your chickens are too late hatched or hens too old.

How to Make Hens Pay.

- 1.—How many hens do you consider it wise to keep on the average 100-acre farm, and to what age?
- 2.—With a view to eggs, table birds or both, what breeds or crosses would you recommend as likely to give most general satisfaction?
- 3.—What plans would you suggest for improving an ordinary farm flock of mixed fowls, such as selection or "weeding out," new breeding birds, setting of eggs, etc.?
- 4.—What period of the year is it advisable to retain male birds with the flock? How about numbers together?
- 5.—By what means do you secure the best eggs for hatching?
- 6.—What treatment would you suggest for a pen of breeding hens from which the eggs are to be set) during the latter part of winter and spring?
- 7.—What sort of a house do you recommend with regard to (a) size, (b) location, (c) warmth, (d) sunlight, (e) ventilation, (f) dust bath, and (g) watering, and to what extent should fowls run out in winter?
- 8.—How do you manage to keep hens free from lice and disease?
- 9.—What foods or mixtures do you recommend for (a) egg production, (b) fattening, (c) how often would you feed per day, and (d) what value do you place on green bones, and vegetables, and sunflower seed?
- 10.—How many eggs per year should a good farm bird lay to be profitable, and at what age should broilers be sold?
- 11.—Should turkeys, ducks or geese be allowed to run in the same house with hens; if not, why?
- 12.—What is your idea of keeping turkeys, ducks or geese on the average farm, and how do they compare with hens as to profit, etc.?

Cannot Raise Table Fowls with Profit.

To the Editor *FARMER'S ADVOCATE*:

SIR,—I think you deserve credit for the series of questions that you are addressing to the stock breeders and others. By poultry raisers I mean those not situated on a town lot dubbed a farm, but those who are raising them for eggs and meat to sell for food on the open market. I may preface my replies by saying I raise, perhaps, as many fowls and eggs for market purposes as any other person in vicinity of Winnipeg.

- 1.—Unless tastes run decidedly that way, 50 or 60 would be ample to supply home requirement, and under present conditions of summer market for eggs and fall market for chickens, I very much doubt if the average flock of hens pays expenses.
- 2.—With a view to eggs alone, the Mediterranean class is indisputably the best, but they require extra care to get their eggs when most wanted, that is midwinter. Perhaps the best birds I ever owned for winter eggs were a cross of White Leghorn hens and Light Brahma rooster. I did not get as many eggs from the cross as I did from the White Leghorns, but I got a large proportion of them when eggs were worth 30 to 35 cents a dozen, whereas the Leghorns fairly rained eggs when they were worth 10 cents a dozen. I have given up trying to raise birds for table purposes, could not do it at ruling price.
- 3.—There is no use to advise farmers to enclose their best hens with pure-bred rooster. By all means kill scrub roosters, and introduce pure blood by means of males of desired breed; change birds every year, but always using same breed.
- 4.—Only during a few months in spring when eggs are required for hatching. They are a nuisance at all other times, worrying hens to no purpose and to positive injury of the eggs.
- 5.—I enclose a few, say a dozen, of my best mature layers with desired male. If these do not produce eggs enough make up another pen.
- 6.—The same as all others, but perhaps increase meat ration slightly.
- 7.—I have not got and have not seen the house that fills the bill satisfactorily. Water at hand *all* the time. I do not allow mine to run out at all after cold weather comes.
- 8.—By using Persian insect powder freely on nests and birds, and coal oil on roost and corners of nest boxes and any other place that lice are apt to congregate in.
- 9.—This is a question not to be dismissed in a line or two, but will simply say soft feed in the morning (steamed over night), one kind of grain at noon, another at night—the last and only full meal of the day.
- 10.—A good hen should lay at least 150 eggs per year; more, however, lay 90 than reach 150. I consider on an average it takes 100 eggs per year to feed and care for a hen. Broilers should be sold at 12 weeks old at latest.

I was at Manitoba Poultry Show, and did my share of admiring the fine feathers, legs, wattles,

eyes, lobes, and combs that came up or did not come up to standard requirements, and was much amused, when listening to the merits of the different breeds, not even to hear the word eggs. Perhaps it is not a recommendation for a hen to lay say 200 eggs per year.
W. Millbrook, Man.

GARDEN AND ORCHARD.

Arbor Day.

While the objects of Arbor Day and the advantages of observing it as it is intended are pretty generally understood and believed in, it seems as though a great many schools have yet to commence the good work of tree planting and otherwise beautifying the school premises. Even indifferent people will, on passing a neat school ground set out with trees and an attractive plot of flowers, commend the good taste and optimism of the section and teachers associated with it. We do not need to be told that every school yard should have some trees within its boundaries, and we are conscious too that the sooner they are planted the earlier will their beauty and comfort to the pupils be realized. In different Provinces specific days have been wisely set apart for this work (May 7th in Ontario); let it be observed in every section in a manner that will result in a permanent benefit to the present as well as to future generations.

A fitting way to commemorate the Queen's Diamond Jubilee would be to devote at least one day to tree planting, not only about the homestead, but about the school and other public places.

What's the Matter with the Potato Crop?

To the Editor FARMER'S ADVOCATE:

Why is it our potato crop, according to the reports of the Bureau of Industries for Ontario, only averages about seventy-five bushels per acre?

There are two or three reasons which seem very apparent. Quite frequently the land is rich enough to produce a good crop if vigorous seed were planted, but too often an opportunity to exchange for good seed or buy it outright is neglected, and small tubers that have been allowed to exhaust themselves by growing long white sprouts are considered good enough for this year. The result is a slow, weakly growth, that falls an easy prey to the vigilant potato beetle, drouth and other prevalent adversities. We must not forget that small, exhausted seed cannot, even in rich soil and with the best of care, produce a maximum crop.

A second cause of failure is the neglect to apply Paris green at the proper time. Two or three days' neglect after a batch of young bugs have been hatched may mean a stripping of a third or half the leaves, which has precisely the same effect as planting exhausted seed, as it robs the plants of a large amount of vitality.

To introduce a little agricultural chemistry just here will show the force of what has been said. Potatoes are largely made up of starch, which, to a large extent, comes from the carbon of the atmosphere. The tops or leaves of the potato plant is the chemical laboratory in which the transformation largely takes place, and when the leaves are eaten off, the factory is destroyed, so that it behooves every potato grower to see that failure does not find an avenue through his lack of promptness.

Middlesex Co., Ont.

C. J. F.

Growing Potatoes for Early Market.

BY JOHN NESBITT, PETITE COTE, P. Q.

In growing potatoes for an early market it is well to have land in as warm and well-sheltered a position as possible, naturally dry or else well drained. We usually prepare this land the fall previous, as early after harvest as possible, by giving it a heavy coating of manure, say from 35 to 40 cart loads. I have heard of some dumping down a cart load every seven yards, which would mean over 60 loads per arpent (French acre). However, as a rule, we keep nearer to the former number. The manure is spread as evenly as possible and plowed under to a depth of about four inches. The object in doing it the fall previous it leaves the land more mellow in the spring. Yet good results may be obtained by manuring in the spring.

The next item to consider is securing good seed that has had proper care during winter to prevent freezing or sprouting. Since so many have gone into this line there is not the profit in it there once was. We are not able to get \$5 per barrel, nor \$1, but have to be satisfied with \$3 and sometimes \$2. It is nice to have new potatoes on the table for Dominion Day, and the potatoes that have been sprouted before planting are usually better flavored by being more mature.

As soon as the land is dry enough in the spring we plow it again, this time from one to two inches deeper than the fall plowing, harrow it well and pass the roller, as it gives a better opportunity to make the drills even. As a potato near the surface grows faster, the drills are not made deep; from two to three inches is sufficient. The width or distance between the drills varies from 21 to 27 inches. Since the potato bug visits us so regularly in its season, and we have to prepare a mixture for them of Paris green and land plaster or water, I find the best drill more suitable to allow the horse and man to pass up and down the drills with less injury to the potatoes and vines, for the width between

our farm cart wheels is 54 inches, thus taking two drills. The 27-inch is also a ready reckoner in getting acquainted with your fields: Twenty-seven inches is three-quarters of a yard; three yards give four drills; 60 yards (one arpent; French acre), 80 drills. If your potato drills yield one barrel, per arpent—240 bush. If your potato drills yield \$1.00 per barrel—\$80.00. If your field is four arpents long, every 20 drills make an arpent, and so on. By lifting one drill or part of a drill, you can know at once the average of your crop, and if it will pay you to sell or not. The distance between the sets in the drill also varies, sometimes according to the strength of the soil and sometimes the variety of the potato, say from six to nine inches.

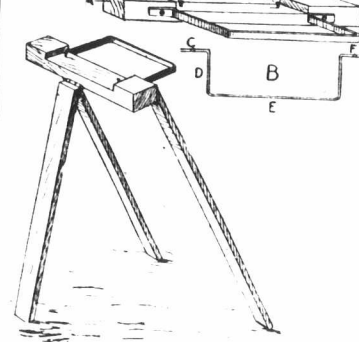
But before planting the sprouted potatoes have to be cut, and at this great care is necessary. The cutter requires to have two or even three baskets. The first basket receives the stronger sprouts; the second basket, the white and weaker ones; the third, those from which the sprouts have been broken. They are usually cut down to one eye, carried to the field in the basket, lifted out with great care and set in the bottom of the drill, and then covered over with the plow. Each grade of plants is set by itself in different places.

When the sprout is about coming through the ground we harrow down with what we call a saddle harrow, taking great care not to break the plants. As soon as all the plants are above ground the cultivator is started. I have found it the best way to pass twice in the same drill forward and back. Do not set the teeth too wide, and give your most attention to one side at a time. By this means you can go close to the plants, work the land better, and leave less to be done with the hand hoe. A day or two after the hand hoeing we pass the cultivator again with a large tooth or sock attached to the rear of it, and round or shape the drill. It is easier to pass in poisoning the bugs. Shortly after we have this much done the potato bugs come along, and we have to attend to them. Fortunately there is the Paris green to settle them much easier than hand picking. As the bugs sometimes steal a march on us when we are busy with the later crops, it is well to have the mixture prepared beforehand. We have always applied it dry, and the first slack day after spring work send for our supply of green and plaster. There is an advantage of knowing your number of arpents when laying in your supplies. I use one barrel of land plaster per arpent, and from five to six pounds of Paris green per arpent. When you know the quantity that is required you can often buy cheaper than by going for a few barrels at a time. You can haul it all the same day and have it mixed and ready the first wet day. We mix it in a tight, shallow box made with tongue and groove boards. Empty two bags or one barrel at one end; pass all plaster through a sieve to remove lumps and foreign matter. We put these lumps into a barrel and afterwards crush and sift before mixing. Next secure a tin that will hold two pounds of green, fill it three times and spread over the plaster, mix well with a shovel or hoe, bag up and pile in a dry corner of the cart shed where nothing can get at it. We apply this with a sprinkler which takes four drills at a time. The first application takes one bag of plaster and three pounds of green per arpent. [NOTE.—A pretty heavy dose.—Ed.] With this our labors are ended in cultivation; and although we may plant and labor with all diligence, we have to leave it to a Higher Hand to give the increase, and He has promised to bless our effort if we but trust Him. I might mention that after the early potatoes are sold in the end of June or beginning of July there is often time to grow a crop of turnips or late cabbage, millet or buckwheat. I know one man who always grows a crop of Indian corn for feeding purposes.

THE HELPING HAND.

Handy Bag Holder.

JOHN KETCHEN, Huron Co., Ont.:—"Take a piece of hemlock scantling 2x3 and 27 inches long, and

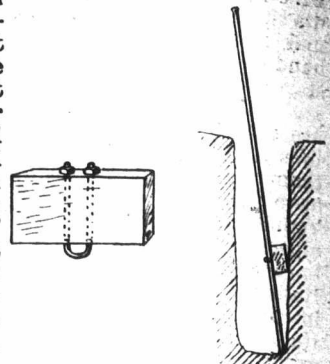


from the middle of it cut out a piece 15 inches long and 1 inch deep. Then take a piece of band iron 33 inches long and bend it as shown at B, making C 3 inches long, D 6 inches, and E 15 inches long. Make a couple of holes at C and F so that loop may be fastened to A by means of screw nails. This loop projects out in front of A. The back leg is a slat 3 feet long and 3 inches wide, and is fastened to A by means of a hinge. The other two legs are each about 3 feet long and are attached to the headpiece (A) at an angle of about 45 degrees. This will make it stand firm. In the cut in A, and about 2 inches from each end, screw a couple of screw nails (G and H), leaving about half an inch protruding. To fasten on the bag, double one side over the iron loop and hook the other side on the screw nails, then move back the slat until the bottom of the bag rest on the floor."

Heel for Crowbar.

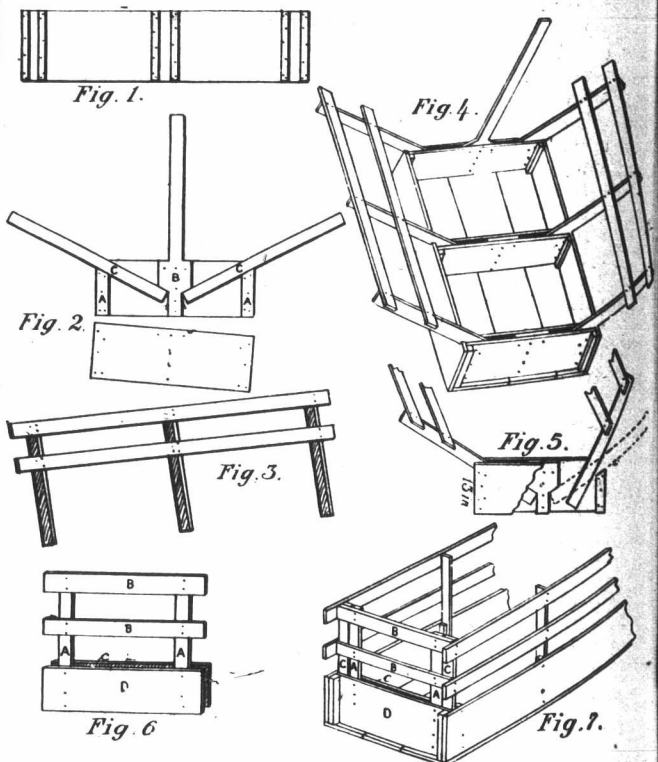
JOHN KETCHEN, Huron Co., Ont.:—"In digging post holes in heavy clay land the subsoil is often so

hard near the bottom that it is almost impossible to loosen it with a crowbar. The following is a great help: Take a cedar block 4x4x6 inch, and through it pass a rod (with thread on both ends) bent in the form of the letter 'U'. Place this block about 14 or 15 inches from the point of the crowbar and screw up the nuts. With this used as a heel or fulcrum against the side of the hole you can loosen the hardest clay or pry out any stone. It can easily be removed when not in use."



Combined Hay and Sheep or Hog Rack.

R. McLEOD, Nippissing district, Ont.:—"The accompanying figures represent a combined hay and sheep rack which is easily detachable and convenient to store away under cover. Any ordinary strong wagon box will answer if cleats are put on to hold the double end and center boards. Fig. 1 represents the side of the box, 1 1/2 inches thick and any desired width and length, with cleats on each end and in the center, nailed on with 3-inch wire nails to received the crosspieces of the sides of the rack. Fig. 2 represents the front board, which is double. The lower portion of the figure is removed from its proper position to show how the sides are held in place. A is of 2x4 inch scantling. B is of 2x6 inch hardwood. The stake is to build the



front of the load against and hold the lines while loading. These double boards are bolted or nailed with heavy wire nails, well clinched. C is of 1 1/2 x 4 inch hardwood. The center and hind boards are made the same as Fig. 2 except that no stake is needed. Fig. 3 shows one of the sides held together with bolts or wire nails. A 7-foot rack requires side pieces 3 feet 7 inches long. Fig. 4 represents the hay rack complete. It is necessary to have a good strong bottom. It is also well to have wagon rods having thumb nuts pass through the box across the center and ends to hold it firmly. A long rack should have 4 crosspieces. Fig. 5 shows how the sides are lifted off or placed in position. A boy can readily do this. The box is shown 13 inches deep, but 11 or 12 will answer. Fig. 6 represents the end boards for the sheep rack. Standards A are 2x4 inch scantling 3 feet 7 inches long. D is the double backboard 12 inches wide which holds the hind shelving or hurdle in place. B B are nailed to standards A on the outside. Fig. 7 shows the sheep rack. The end boards are placed in position, and the right-hand shelving is put on the left side of the box and the left on the right. The end uprights of the sides slip down between standards A of the end and the sides of the box. This holds the shelvings upright. The end boards slide up and down on C, Fig. 7. The rack is my own contrivance. I gave it a good trial last year and am well satisfied with it."

In a Danish feeding experiment it was found that young pigs weighing 33 to 75 pounds require 3 1/2 pounds of grain for its equivalent in milk or whey to make one pound increase; at 150 to 200 pounds about five pounds was needed; and old hogs weighing over 200 pounds consumed six to six and a half pounds of grain for each pound increase in weight. The animals ate but slightly more in winter than in summer, but it required nearly half a pound more grain feed for one pound of gain in winter than in summer.

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J. E.:—
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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.]

Legal.

DIVISION OF PROPERTY.

J. E.:—"An uncle left two hundred acres of land to be divided equally between two relatives; there was a line surveyed and run about twenty years ago, and the fence has been up about fifteen years, and after measured now it is about five yards distant from the true center line. Can I claim half the land, or has the fence to stay where it is?"

[It is not clear from the above question whether the uncle died before or after the erection of the division fence referred to. If the fence were erected for the uncle in his lifetime, and did not divide the property equally in halves, then the true dividing line should have been ascertained within a reasonable time by the parties to whom the property was left; but if the parties after the uncle's death allowed the old line fence to remain, and have treated it as the dividing line for ten years or more, then neither can compel the removal of the fence now, the ten years of peaceable occupation of the land being sufficient to give the occupier a good holding title to the part in dispute.]

Veterinary.

INDIGESTION IN HORSES.

FARMER, Prince Co., P. E. I.:—"Horses sick all winter; well cared for and fed on ground oats and well-cured hay; appetite voracious; gnaw and eat boards and planks of manger; eat dirt when out in barnyard; coat dry and unthrifty; chafe easily. Constipated when in the stable, and purge on the road. Suspect the water they drink, which is from a well in the yard. I send analysis of same. Please give cause and treatment in veterinary column?"

[While your horses are undoubtedly suffering from indigestion it is not an easy matter to arrive at the exact cause of the trouble. The character of the food seems good, and if given at regular intervals should produce better results. Is the sanitary condition of your stable as good as it ought to be? No amount of good food will keep horses up if they are in unhealthy stables, having poor light, drainage, ventilation, etc., or overcrowded. See to those conditions, and for the present give each horse a dose of physic on an empty stomach: Barbadoes aloes, 6 drams; ginger, 3 drams; calomel, 1 dram; powdered nux vomica, 40 grains. Dissolve in a pint of boiling water and drench, taking care that they get all. Feed bran mash only the day before also day following purge. If no action in 24 hours give exercise. Not until after a good purge has operated give a teaspoonful of the following mixture to each animal in the feed three times a day: Bicarbonate of soda, 8 ounces; nitrate of potash, powdered gentian, finely powdered charcoal, of each 4 ounces; powdered nux vomica, 2 ounces; powdered capsicum, 1 ounce. Boil the oats for night feed, in which is about a teaspoonful of flax seed for one feed for the team. Give bran and ground oats morning and noon, and salt regularly, and do not allow more than fifteen pounds good hay per day for each horse. Grooming is also very beneficial in such cases. Also an occasional feed of raw potatoes will be found beneficial. Regarding the water, which seems pure, and an analysis of which shows nothing injurious except the amount of solids, the character of which we do not know, but suspect germ life, the result of seepage from the yard—a location for a well which we always look upon with suspicion. Even though such water looks pure, it is often dangerously contaminated with germs, which act on the nervous system and produce the conditions you described. Send us a sample in a clean, well-sealed bottle for a microscopical examination, and we will be better able to judge as to this being the probable cause of the inactivity of the digestive organs. It might be well to have a competent veterinarian examine their teeth, and correct irregularities. Report in fifteen days after purge has operated.]

INDIGESTION IN LAMBS.

D. P. L. CAMPBELL, Prescott Co., Ont.:—"There has been a large percentage of the lambs in several flocks that have died this spring in this neighborhood, and as the flocks have been subject to different systems of feeding—some have been fed roots, others no roots—and also of different breeds, it is difficult to account for so great fatality. Some appear to be weakly when dropped, but in other cases they appear strong, well developed, and all that could be desired, but as a rule in about two days after birth they die. The first symptoms noticeable is an apparent weakness of the hind extremities, like partial paralysis, an inclination to get into corners and stock their heads where possible, and at times it would seem as if there were a tendency to miscalculate the distance from the wall. In some cases diarrhoea, others normal, others somewhat constipated. These conditions usually manifest themselves in thirty or thirty-six hours, and they appear to be duller, take less nourishment, lie down with the head thrown, it may be, back of the shoulders, now and then give a spasmodic bleat, at the same time the head is thrown back to the flank, and in an hour or so the

lamb is dead. Post-mortem shows different quantities of curd in the stomachs, bowels empty in one case, in another full. Had one examined by a veterinary surgeon, who pronounced brain, spine, sciatic nerve, joints, lungs, heart, stomach, liver, kidneys and bowels normal. Please give cause, nature, cure, and prevention."

[The sick lambs are suffering from indigestion, as the post-mortem shows, and is probably one of the most fatal diseases that attack young animals. It is caused no doubt by some peculiarity in the character of the food which is fed to the mothers, probably producing too much rich milk; the lambs being hearty, take more than they can digest. Or, on the other hand, the milk is defective in some of its digestive qualities. At any rate we consider the cause rests with the mother's milk. The treatment would be to give each lamb a laxative dose of castor oil at the first noticeable symptom. Follow this up with subnitrate of bismuth and scale pepsin, of each two grains; dissolve in a little milk, and give to each lamb three times daily, and in case the ewes have an abundance of milk, do not allow the lambs to take it all, but milk it out. The nervous symptoms are reflexed from an irritation in the stomach.]

TONGUE-SUCKING HABIT.

J. A., Carleton, Ont.:—"The answer that you gave in the ADVOCATE of February 15th, to my enquiry to remedy my Clyde filly wind-sucking, has done very little or no good. I have fed her as you recommended, but she still sucks her tongue."

[Have a mouthing bit made as follows:—Take a piece of one-inch iron gas pipe six inches long, place a ring at each end: have four holes drilled into the body of the bar; leave both ends open. This will prevent the mare forming a closed cavity of her mouth and stop the wind-sucking habit. Feed off the floor, and continue the dry food, allowing a pail of water always in front of her.]

DR. WM. MOLE, M. R. C. V. S., Toronto.

NOTE.—By some authorities the habit of wind-sucking is brought about by an abnormally acid condition of the stomach, and the introduction of air into the stomach gives temporary relief from the distress, which in turn only aggravates the condition, and by its weakening influences produces indigestion; hence the bloating. In addition to the cup contrivance, we would suggest a course of tonics: bicarbonate of soda and charcoal, of each four ounces; nux vomica, one ounce. Give a teaspoonful in each feed, and also an occasional laxative of raw linseed oil, about a pint at a dose, together with regular work. Would feed a little bran (one quart) in each feed; mixed with a sufficient amount of cut hay or straw to make her eat slowly.—ED.]

WHEEZY OX.

WM. WALKON, Estevan, Assa.:—"We have examined the ox as per your directions on page 134, March 20th issue. The windpipe at the throat is enlarged. He has great difficulty in getting his breath; will stretch out his head and open mouth. I am feeding him the same, but he is falling in flesh."

[There is probably a polypus or some other kind of tumor obstructing the windpipe, and if such is the case it would require the personal attention of a veterinary surgeon. You may apply the following blister over the supposed seat of the ailment: Biniodide of mercury, two drams; cantharides, three drams; vaseline, three ounces. Mix. Rub well in with the hand.]

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

LAME COLT.

A. J. LOVERIDGE, Pheasant Forks, Assa.:—"A filly from a 1,300-lb. mare and Suffolk Punch sire was very weak in front fetlock joints when foaled last spring. They knuckled completely over. I let her run out to grass with dam; but getting no better, applied bandages which straightened up the joints; but the foot then turned up the other way, the toe growing out long, causing her to walk on heels. A V. S. seeing her advised trimming the foot into proper shape. When this was done it seemed to weaken the joints and all winter she has only been able to hobble round. I am forty miles from a veterinary surgeon or would try and have her treated."

[It is not likely that your filly will ever get better, as by this time adhesions have taken place which could not be removed either by artificial appliance or surgical operation.]

W. A. DUNBAR, V. S.]

CARE OF MARE NURSING FOAL.

A SUBSCRIBER:—"What causes a four weeks old foal to pass washy, undigested food, which mine has been doing for the past two weeks? The mare is fed on dry bruised oats and prairie hay, of which the foal wished to eat since three days old. It is not allowed to get at the oats now, but it makes no difference, it still eats hay. The mare is in good condition and healthy, with lots of milk. The foal is otherwise healthy and vigorous. Please advise."

[The fact that your foal continues to be "healthy and vigorous" shows very clearly that it does not suffer very much from indigestion. It is not unnatural for a foal, even as young as yours, to nibble at hay, and there is not, usually, any bad results from it. I will not advise any medicinal treatment for the foal, but would recommend a partial change of diet for the mare, such as giving a bran mash containing a little flax seed alternately every evening with a ration of boiled grain until turned out to pasture. Let both mare and foal have a little daily exercise.]

W. A. DUNBAR, V. S.]

BLACK TEETH IN PIGS.

SUBSCRIBER, Chater:—"Would you kindly give information through your paper re black teeth in pigs? I have been breaking them off, yet cannot say whether it ever did any good or not. Lately a man was telling me they should not be touched, but they were the result of indigestion and we should feed properly and the teeth would not interfere. Is that correct?"

[Premature decay and blackening of the temporary teeth in pigs is generally supposed to be the result of too high feeding. If the teeth are loose remove them with small forceps, not otherwise.]

W. A. DUNBAR, V. S.]

THOROUGHPIN.

GEO. S. DRYDEN, Michie, Man.:—"Please let me know what to do to cure a thoroughpin on a young horse. It has just come on and the horse is lame when working."

[Put on a high-heeled shoe and apply the following blister: powdered cantharides and biniodide of mercury, of each two drams; vaseline, two and a half ounces; mix. Cut the hair closely from the parts, rub the ointment well in with the fingers, let it remain for forty-eight hours, wash off and apply vaseline to the blistered surface. Repeat as soon as the scab comes cleanly off.]

W. A. DUNBAR, V. S.]

KNUCKLING.

A FARMER, Clarkleigh, Man.:—"I have a five year mare that is knuckled over on hind fetlock joints. She is not lame unless driven on very hard ground, but stands knuckled over, and one joint seems loose when walking. Can she be cured; if so, please give remedy? I have blistered her with cantharides twice, but it did no good. She is in foal and will run on prairie for two or three months in the spring."

[Have the joints fired by a competent person and turn the animal out to pasture for two or three months.]

W. A. DUNBAR, V. S.]

LAMBS WITH SORE EYES.

F. J. E., Grey Co., Ont.:—"When my lambs came this spring they appeared to have very sore eyes—very red and running matter. They were fairly good in other respects, but some of them were almost blind for a day or two. My ewes are Leicester grades and the ram a thoroughbred. They were fed during the winter on clover hay, pea straw, and cut sheaf oats, with an occasional feed of swede turnips once or twice a week, and are in fair condition. Please let me know the cause and how to avoid it if possible."

[It is difficult to account for this trouble or to suggest a remedy. It is not uncommon and is not a very serious trouble, as the lambs generally get over it without any special treatment. We have known it to be so bad that the sight was blinded for some days by a film growing over the eye, but it wears away in a few days and the sight is fully restored. It may be that the dirty wool around the ewes' flanks and udder may cause it, and it is well to remove some of this by clipping. A wash of sugar of lead in soft water applied to the eyes would no doubt be helpful. The feeding and care seems to have been all right.]

PREMATURE BIRTH.

"FRESHIE," Prescott Co., Ont.:—"Yesterday morning I found that one of my cows had calved about ten days before her time. The calf was dead. A neighbor recommended a feed of hot oats, tepid water to drink, and an application of heated oats to the loins to free the placenta from the womb. I did all this without any apparent effect. To-day another neighbor removed the afterbirth by hand, seemingly without trouble, but I should prefer medicinal help, if there is such a thing and it did the work as well. The cow is hale and hearty, udder is large, but I cannot draw much milk at a time, so I take what I can about four times a day. Please let me know through your helpful paper whether she might have cleaned without assistance? Whether there is any alternative to the hand or force treatments and what it is? Will her milk not flow until her time is up, and is the flow likely to be normal then? When do you consider the milk will be fit for use?"

[There are drugs which are said to have the power of expelling the afterbirth in such a case as you describe, but they are very uncertain in their action and consequently cannot be relied upon. The course adopted was the proper one, providing the operator understood the operation. Great damage can be and often is done in the hands of unskilled men, and in no case should it be attempted under thirty-six hours after calving; besides, frequently nature will accomplish the desired end after the second day, which is always preferable. If after the second day there is no change it should be removed by hand.]

The secretion of milk will in all probability become normal within a week under the care you are giving her. A generous diet will of course assist, yet not too much strong grain as corn, peas, etc., oat chop, oil meal, bran, with roots and good hay, being the proper food. Her milk should be fit for use by about the fifth day, providing the afterbirth was all removed and no abnormal change presents itself. The accident is sometimes recurrent; in fact, frequently.]

Miscellaneous.

FOOD FOR YOUNG TURKEYS.

W. W. BROWN, Colchester Co., N. S.:—"What do you consider the most suitable food for young turkeys?"

[Young turkeys require no food until they have been hatched 24 or 36 hours. The food for the first week should be hard-boiled eggs (boiled twenty minutes) chopped fine and fed every two hours along with stale bread crumbs moistened with milk, also a few dandelion leaves chopped fine and fed two or three times a day. They should have access to a small vessel of spring water, so arranged as to allow them to drink without getting wet. A little new milk is excellent for them. Allow access to fine, sharp grit. After the first week commence giving a variety of feed—dry rolled oats or granulated oatmeal, boiled rice, onion tops, curd, bread, wheat screenings, etc., but continue the hard-boiled eggs, giving the other food alternately. On the first appearance of diarrhoea feed rice boiled dry and sprinkled with powdered chalk.]

ROOT-HOUSE CONSTRUCTION.

J. M. W., Quebec:—"Will you please tell me the best, cheapest, and simplest way of building a root house?"

[If it can be done, we would suggest that the root house be made on the principle of a cellar, by excavating beneath a barn or other building, and making the walls of masonry or concrete and concrete floor. If the root house has to be built apart from another building and cannot be constructed in a bank, or be banked up well with earth, the walls may be of 18 or 20 inch stone masonry or 16 to 18 inch cement concrete. Such a building should be lined up with inch lumber, nailed to upright studs to form a dead air space. Concrete is much more frostproof and drier than stonework for the reason that stone walls have continuous stones through them which conduct frost to the inside, while the same condition is not the case with the concrete wall. The ceiling should be of tight double boards covered over with several inches of sawdust, straw or chaff. If lumber is cheap and the other materials mentioned dear or unavailable, a good root house can be constructed of frame, having walls of inch lumber outside, battened over the cracks. Inside of this should be ten inches of dry sawdust, and a lining of inch lumber, and if in a very cold, exposed location, this should again be lined up with tarred paper held in place by another lining of cheap lumber. A root house should not exceed 16 feet in width nor 10 in depth, as roots are liable to heat and rot in wide, deep piles. Perhaps a simpler and cheaper root house, but less durable, would be similar to the old-fashioned pit, having its sides of poles fitted closely together and covered over with cedar bark or straw and then covered deeply with earth. Such a structure is only suitable as a makeshift until a better house can be constructed. Whatever the style of root house, ample ventilation should be provided. We have always made a channel clear around the roots against the wall, by setting eight-inch boards on their edges on the floor four or five inches out from the wall and leaning them against strips or cleats against the wall. This should connect with outward ventilation, which may be closed in very cold weather. Through the center of the root house on the floor we place long boxes or troughs having slat tops, and connect these with pipes leading to the ceiling, or through it to the outside. There should also be one or two other ventilators leading up through the roof. These should be left open whenever moisture is seen to condense on the ceiling and closed when there is danger of frost.]

INSECT EGGS ON APPLE TREE.

J. L. K., Thorold, Ont.:—"I send short piece of apple twig bearing a row of some kind of insect eggs. Please let me know what they are."

[The eggs sent are those of one of the Geometer moths, which may be called the large angle-winged Geometer (Eunomos magnaria). This is a rather large moth, expanding about an inch and a half across the wings, which are ochre-yellow, spotted with darker points. The apple is rather an unusual food plant for this insect. The caterpillars, which belong to the class known under the name of "loopers" (from their peculiar manner of walking), feed more commonly on the maple and elder. I do not think that it is at all likely that you will have any trouble with these caterpillars on your apple trees, but for the reasons given in my last article in the FARMER'S ADVOCATE I advise you strongly to spray your trees this spring against insects and fungous diseases, when, of course, if there are many of these egg clusters the young caterpillars will be destroyed with other leaf-eating insects.]

Central Experimental Farm. J. FLETCHER.]

TRAINING A COLLIE.

W. A. MCGEACHY, Kent Co., Ont.:—"As I have secured one of your premium Collie pups, I should like to learn from some of your readers how to train him?"

[The training of a Collie dog requires the employment of some of the principles used in our kindergartens. We deal with the puppies just as we would with a little child. First teach the pup to love you. Talk with him, praise him, and teach him a few little tricks; yet be systematic about it. He must have his own bed, a box, a blanket or a mat, always in the same place. He must have his two meals a day, and they should be served on

time, for a puppy forms habits just as easily as a child. In teaching tricks always use the same words each time for the same thing; that is, do not change the wording of a command, for in this way the puppy will soon learn what you mean. If the puppy is to be a driver, begin with him when about five months old. At first just keep him at your side, while you drive the stock. You must take your time and do the work carefully if you would have the dog work well. Always go quietly around to the rear of the stock, then wave your arm and make some noise about the work. The dog will then understand what you are about. A dog should not be expected to do his work alone until he is a year old, and not then unless he has been daily in the field. A Collie generally takes naturally to driving, but sometimes they show the discouraging trait of going to the head. In this connection we would say that from the very start a pup should be accustomed to being led with a light rope, and by all means to be taught to come quickly when called back. He should know to stop driving at once with the words, "that will do," or "here," from his master. Then if he goes to the head he may be called or pulled back. These bad habits will not prevail if the start is made right. Above all things remember a Collie must know but one master. If every man, boy and child about the place undertakes the training you will have a dog which will prove only a disappointment and a nuisance to you. Always praise your dog for work well done. Never whip a Collie; he will never forget it if you do, and will constantly be in fear of you. A good scolding is enough.—Geo. Kramer in Iowa Homestead.]

LIME IN POULTRY HOUSE.

B. C. SUBSCRIBER:—"I have used lime liberally in my poultry house and whenever the hens scratched or stirred about the air became quite thick with lime dust. Several fowls died, and the lungs on examination showed what might be taken for a diseased condition, resembling tuberculosis. What is your opinion of the cause of death, etc.?"

[Lime should only be used in poultry houses in small quantities. It should only be swept over the drop-boards and floors so that no fumes would rise from it. It will, if used in large quantities, when disturbed by the hens, set up an irritation in the throat and windpipe, and may cause inflammation of the throat and lungs. It would not cause tuberculosis. A small quantity of lime dusted in the bottom of nest-boxes we find a preventive against vermin. The sweeping of lime over the drop-boards after cleaning them will prevent any bad smell that might arise from the excrement being allowed to remain any length of time. L. G. JARVIS, Ontario Agr'l. College, Poultry Manager.]

FERTILIZED EGGS.

OLD READER:—"I am much impressed with Mr. Meyer's article in the ADVOCATE for April 15th, and intend following the advice given. I have already beheaded the cock that was running with my hens, and I would like to know how long after his removal will the infertile eggs commence to be laid. I should also be pleased to learn how long after the introduction of a male with the hens will they commence to lay fertile eggs?"

[After removing the male from the female flock the percentage of fertile eggs will gradually lessen after the fourth day up to the eighth or tenth day; after that time all eggs laid will be infertile. We have known eggs to be fertile after the male bird had been put in with the hens in four to six days. We look for a fair percentage of fertile eggs on the 10th day. L. G. JARVIS.]

APPLE TREE CANKER.

S. W., Pickering, Ont., sends an apple twig for examination.

[The apple wood is suffering from two injuries. First, an attack of an insect called the Buffalo tree hopper, which injures the bark of young twigs by puncturing it in order to deposit its eggs. (This insect has been described by Dr. Fletcher.) The larger indentations or roughnesses are caused by a disease called "canker," making corroded patches at the forks of the branches. This is not usually recognized as a contagious disease, but there is no doubt that although it often only affects a single variety in an orchard that it spreads more or less rapidly from tree to tree. It may be prevented by performing a simple surgical operation involving the removal of the diseased bark and wood, if coupled with the following treatment: Practice every year early in June a habit of washing the stems of the trees, including the larger branches, with a strong solution of washing soda thickened with soft soap. Where trees are badly affected all the diseased portion should be cut away and the wound covered with grafting wax. Badly affected trees rarely recover. If they are attacked when young it is usually good policy to take them out at once and replace them with healthy specimens.]

J. CRAIG, Dominion Horticulturist. AYRSHIRE SCALE OF POINTS.

O. M. DERRY, Missisquoi Co., Que.:—"Will you kindly publish in your next issue the points of a thoroughbred Ayrshire bull and cow, and oblige a reader?"

THE BULL. Points.

I. The head of the bull may be shorter than that of the cow, but the frontal bone should be broad, the muzzle good size, throat nearly free from hanging folds, eye full. The horns should have an upward turn, with sufficient size at the base to indicate strength of constitution.

- II. Neck of medium length, somewhat arched, and large in those muscles which indicate power and strength.
III. Fore quarters—Shoulders close to the body, without any hollow space behind; chest broad, brisket deep and well-developed, but not too large.
IV. Back—Short and straight; spine sufficiently defined, but not in same degree as in cow; ribs well-sprung, and body deep in the flanks.
V. Hind quarters—Long, broad, and straight; hip bones wide apart; pelvis long, broad, and straight; tail set on a level with the back; thighs deep and broad.
VI. Scrotum large, with well-developed teats in front.
VII. Legs—Short in proportion to size; joints firm. Hind legs well apart and not too cross in walking.
VIII. Skin—Soft, elastic, and of medium thickness.
IX. Color—Red of any shade, brown or white, or a mixture of these, each color being distinctly defined.
X. Average live weight at maturity about 1,500 lbs.
XI. General appearance, including style and movement.

Perfection. Points.

- I. Head short; forehead wide; nose fine between the muzzle and eyes; muzzle large; eyes full and lively; horns wide set on, inclining upwards.
II. Neck moderately long and straight from the head to the top of the shoulder, free from loose skin on the under side; fine at its junction with the head, and enlarging symmetrically toward the shoulders.
III. Fore quarters—Shoulders sloping; withers fine; chest sufficiently broad and deep to insure constitution; brisket and whole fore quarters light, the cow gradually increasing in depth and width backwards.
IV. Back—Short and straight; spine well defined, especially at the shoulders; short ribs arched; the body deep at the flanks.
V. Hind quarters—Long, broad and straight.
VI. Udder—Capacious and not fleshy; hind part broad and firmly attached to the body, the sole nearly level and extending well forward; milk-veins about udder and abdomen well developed; the teats from 2 to 3 inches in length, equal in thickness, the thickness being in proportion to the length, hanging perpendicularly, their distance apart at the sides should be equal to one-third of the length of the vessel, and across to about one-half of the breadth.
VII. Legs—Short in proportion to size; the bones fine; the joints firm.
VIII. Skin—Soft and elastic, and covered with soft, close, woolly hair.
IX. Color—Same as in the male.
X. Average live weight in full milk about 1,000 lbs.
XI. General appearance, including style and movement.

VETERINARY.

Diseases of Young Foals.

At this season of the year it is well that the stock breeder acquaint himself with the ailments of foals, so that upon their arrival he may not be found wholly unprepared to confront emergencies that may arise. It is true the ailments of the little animals referred to are not numerous; it is also equally true that they are in many cases of a very fatal type, from the fact of their tender age and conditions, which would be of a trivial character to an animal more advanced in age and strength. One of the first ailments coming to our notice, or rather abnormal condition, is

Umbilical Hemorrhage, or bleeding from the navel, the result of cutting the cord, or by accidentally tearing it, too close to the body, the result being that excessive bleeding takes place and must be arrested or the little animal becomes extremely weak and dies from loss of blood. The treatment consists of tying a ligature around the cord if not too short, when great care must be exercised to avoid enclosing a portion of the bowel. In case the cord is broken off too short to admit of a ligature, astringents, such as tannic acid or alum in solution, may be tried, or even put on dry, while the patient should be kept as quiet as possible for a few days until the end of the vessel heals. One of the next difficulties with which we have to contend at this period is

Persistence of the Urachus, or passing the urine through the umbilicus. In foetal life the urine is conveyed from the bladder to the umbilicus by a special passage, which should be obliterated at birth, but occasionally it happens that nature fails to perform this duty and allows the urine to still escape by that medium. The condition is of a trivial nature at first, and frequently little or no attention is paid to it, but if allowed to run on for days the animal becomes very weak, and dies in a short time, hence it is important to pay the strictest attention at the earliest notice. Antiseptics (weak carbolic solution) and astringents, such as strong alum and tannic acid in solution, or the application of nitrate of silver, should be applied to the opening from which the urine escapes. Closely associated with the above condition we have one of a most serious type—

Inflammation of the Umbilical Cord. The remains of the umbilical cord in the normal condition quickly dries up. When inflamed the parts appear moist and swollen, and from which escapes a thin, unhealthy-looking discharge which soils the surrounding skin. The animal is now sick, dull, feverish, lies around, refuses to suck, indications of colic or peritonitis are sometimes manifest, and in many cases death rapidly ensues.

There are numerous causes assigned as producing this condition: the admission of air or foreign matter into the vessels; bruises to the umbilicus either during or after birth; rupture of the cord too close or within the abdomen; exposure to cold and wet; improper food (rich) given to the mother; and infection. As to infection producing this condition there can be no doubt, hence the great importance of removing all decaying matter, such as afterbirths, and not allowing a mare to foal near to where any animal has lately aborted. In the treatment of this condition cleanliness is all-important and absolutely

necessary, as infected from danger of infection end of the dressing, as germs and wounds. W sented itself and antiseptic solution of cleaning away and become abscess the bowels oil, if necessary, bilious, and the worst ail

Arthritis there is muc giving the nized it cap paper as th early in the dullness, a d the joints c painful, the constipated, times very r hours from t This course live for 20 d disease, in t the patient i of dry bedd injections o repeated do must be rest ing nature, s ground oats. only agents destroying t the symptom which there

be made fr possess irrita cylate of so the fever a Tonics also, keeping up once firmly badly swol changes hav animal will Indigesti young ani them soon appear to difficult to d quantity of results, there in the quant mother hap has witness The animal suck, hangs agreeable, s the tongue charging; t constipated which shoul of affording present. Treatment to early. A carrying off preparation (able), say fi hours—mo present pa given, but abdomen w mother's u point and sl

Diarrhoea tacks young years attra specific nat in the maj attributed much milk allowing th absent for a arrived in a the mare, a etc.); drink remain out duration in patient dyin treatment i most proba from food should be a consequent should be g water, 4 ozs small doses given to quiet and g case the pu completed i will be four opium, 10 g every four t the case. T tible chara quarters pr Constip

necessary, and the young creature should be protected from every possible source of infection. The danger of infection may be greatly decreased if the end of the cord be protected by a strong antiseptic dressing, say carbolic ointment, which destroys germs and keeps off flies which also carry germs to wounds. When inflammation has actually presented itself it is necessary to keep the parts clean and antiseptics employed freely—a five per cent. solution of carbolic acid being very useful. Cleaning away any accumulation of matter that might become absorbed should be attended to. See that the bowels are kept open by small doses of castor oil, if necessary (not purged), and a cooling diet to the mother. Following inflammation of the umbilicus, and as a direct result, we meet with one of the worst ailments attacking young foals—

Arthritis or Inflammation of Joints, of which there is much difference of opinion, and apart from giving the symptoms by which it may be recognized it cannot be justly dealt with in such a paper as this. The principal symptom noticed early in the attack is difficulty in moving, great dullness, a desire to lie around, and in a short time the joints commence to swell, become hot and painful, the little animal is feverish and bowels constipated. The progress of the disease is sometimes very rapid, the animal dying in from 24 to 48 hours from the manifestation of the first symptom. This course is, however, rare, and the animal may live for 20 to 30 days. In the management of this disease, in the milder cases, it is necessary to have the patient in a comfortable, dry stable, with plenty of dry bedding. The bowels must be kept open by injections of warm water, or, if necessary, small repeated doses of castor oil. The mother's diet must be restricted to such articles as are of a cooling nature, such as roots, grass if in season, bran and ground oats. From the nature of the malady the only agents that must be expected to assist in destroying the morbid conditions which produce the symptoms are what are known as antiseptics, of which there is a great variety, and a selection must be made from the list of those which do not possess irritating properties. Many prefer the salicylate of soda, it having the power of overcoming the fever as well as that of destroying the poison. Tonics also, and cod liver oil, are of great benefit in keeping up the strength, but when the disease is once firmly established and the joints become badly swollen and suppurate, such extensive changes have taken place that it is doubtful if the animal will ever be useful in case it lives.

Indigestion is a condition which destroys many young animals annually, sometimes attacking them soon after birth. The principal cause would appear to be from the milk being too rich or difficult to digest from its poor quality. The quantity of the milk may also produce serious results, therefore a strong colt should be restricted in the quantity of milk he is allowed to take if his mother happens to be a heavy milker. The writer has witnessed many fatal cases from no other cause. The animal appears duller than usual, refuses to suck, hangs its head, and if closely examined a disagreeable, sour odor of its breath may be detected; the tongue is coated, eyes dull and frequently discharging; bloating sets in. The bowels are either constipated or an offensive diarrhoea presents itself which should be encouraged, as it is nature's means of affording relief. Colic also is in many cases present.

Treatment to be of any benefit must be resorted to early. A laxative of oil to assist the bowels in carrying off the curdled milk and such agents as the preparation of pepsin (the pure scales being preferable), say five grains in solution every four or five hours—more will do no harm. If much pain is present quarter-grain doses of morphine may be given, but only in extreme cases. Heat to the abdomen will also be found to give relief. The mother's udder also requires attention at this point and should be emptied freely.

Diarrhoea.—The peculiar diarrhoea which attacks young animals while at the teat has for many years attracted particular attention because of its specific nature and its almost incurable character in the majority of cases. The causes which are attributed as producing it are many, such as too much milk, milk of improper qualities, such as allowing the colt to suckle a mare that has been absent for a period of a few hours and perhaps has arrived in a heated condition; improper food for the mare, as too much strong grain (boiled barley, etc.); drinking of impure water; being allowed to remain out in cold storms, etc. The period of duration in some cases being extremely short, the patient dying in many cases in a few days. In the treatment it is always advisable to consider the most probable cause and set about to correct it. If from food of an indigestible nature the bowels should be assisted in relieving the offensive matter, consequently a laxative dose of linseed oil emulsion should be given at first (pure linseed oil, 4 ozs.; lime water, 4 ozs.; well shaken). If much pain is present small doses of laudanum, say ten drops, may be given to allay the distress. Keep the patient quiet and give a few doses of prepared chalk. In case the purging continues after the laxative has completed its work, a few doses of the following will be found useful: Prepared chalk, 1/2 oz.; pulv. opium, 10 grains; ginger, 20 grains. One powder every four to six hours, according to the urgency of the case. The mother's diet must be of light, digestible character, and absolute rest and comfortable quarters provided.

Constipation—the opposite of diarrhoea—fre-

quently occurs in young animals from improper diet to the mother, and overfeeding. The symptoms are of such a character as not to escape notice, colicky pains being present, bloating and straining. If an examination be made in such cases in foals a few hours to a day old, it will be found that the meconium (hard faeces in the rectum at birth) is retained and requires separating to allow its passage; in fact, some lumps being so large and hard as to completely fill the passage in the pelvic bone. Such cases require careful perseverance. To remove them give injections of warm oil. In case the patient has been relieved of the meconium and the obstruction is beyond the reach, a dose of oil should be given at once (the writer prefers castor or olive oil), together with injections of warm water every hour, and do not allow the patient to suck the mare very persistently until relieved. V. S.

MARKETS.

Toronto Markets.

Nearly all the offerings were sold. The outlook for choice cattle is considered fairly good; about 10 loads were taken for Montreal. The public abattoir established by Mr. W. Harris is fairly started and will be pushed to completion at an early date. It is proposed to spend \$25,000 on the buildings and fittings and to establish a dressed meat export trade with Great Britain, the cold storage system of cars to be available early in July. All the arrangements are not yet completed.

Export Cattle.—Cattle from Glasgow are not very good, and the actual sales of Canadian cattle reported were at prices which just let the shippers out with a slight profit. In ocean freights business has been done at 42 shillings to Liverpool, 47 shillings to Glasgow, and 42 to 45 shillings to London. All space has been contracted for until June, but it is not likely that the demand will be very brisk for another two weeks. The first steamer out of the St. Lawrence was due to leave April 27th, and a picked lot of cattle were to be forwarded. Trading in export was fairly good at firm prices. A few large steers were bought at 4 1/2c. to 4 3/4c. per lb. for choice, for which there was keen competition.

Butchers' Cattle.—Good choice cattle were in demand; prices held steady at 3c. to 3 1/2c. per lb.; nothing went below 2 1/2c., even the very poorest quality. Buying for Buffalo was quiet, those taken brought from 2 1/2c. to 3 1/2c. per lb.; some went for 3c., and for extra choice, per lb. for export changed hands at from 3 1/2c. to 3 3/4c. per lb. Stock and thin bulls are in slow demand; good choice feeders and one or two fancy selling at 3 1/2c. per lb.

Stocks.—A very slight demand, quotations ruling from 2 1/2c. to 3 1/2c. for choice.

Feeders.—Only a few taken to fill vacancies; not many on sale all on offer from 3 1/2c. to 3 3/4c. per lb.

Sheep.—A few good bulls fit for export changed hands at 3 1/2c. to 3 3/4c. per lb. Good yearling grain-fed sell readily at 5c. to 5 1/2c. per lb.

Lambs.—The quality was not good; a few choice, but a great many poor ones, on offer; prices ruled all the way from \$2 per head to \$4 for the good run; one or two went for \$4.50, good heavy demand.

Hogs.—This market was demoralized by the large offerings of poor stock. Prices ranged all the way from \$2 to \$8 per head; choice veals wanted.

Milk Cows.—All on offer sold readily; best cows for dairymen sold at from \$30 to \$40; common cows, no demand.

Hogs.—Prices steady on short supply, about 1,200 on offer, prospects are better than active demand for choice hogs, and prices ruled. Best sizers 5c. per lb. weighed off cars. Thick fat and heavy at 4 1/2c. to 4 3/4c. per lb. Light hogs, 4 1/2c.; sows, 3c.; stags, 2c. All kinds wanted except thick fat. The quality of the hogs now is a great improvement on last year's supply. There is no doubt that farmers are getting better educated to this market's demands.

Dressed Hogs.—Very light supply; a few select lots sold at \$6.25 to \$6.40. Packers have just about closed down for the season.

Wheat.—The offerings are very small, and holders are firm; in fact, there is no wheat on this market; we quote market price, 75c. per bushel.

Oats.—Firm; 200 bushels selling at 24c. per bushel.

Hay.—Firm, with a disposition to hold at \$12.50 to \$13.50 per ton.

Straw.—Scarce at \$6 to \$7 per ton.

Eggs.—Market steady at 9c. to 9 1/2c. per doz.; strictly new laid at 13c. to 14c. per doz.

Hides are unchanged, with cured quoted at 8c. to 8 1/2c. Dealers pay 7 1/2c. for No. 1, 6 1/2c. for No. 2, 5 1/2c. for No. 3.

Calfskins.—Market dull; 7c. to 8c. for No. 1, 5c. for No. 2. Sheep and Lamb Skins, \$1.10 to \$1.25.

Wool.—The market is unchanged at former quotations.

Table with 3 columns: Item, Unit, Price. Includes Export cattle, Butchers' choice, Butchers' good, Bulls, Feeders, Sheep, Lambs, Calves, Milk cows, Hogs, Hogs, thick fat, Sows, fat, Stags, fat.

Montreal Markets.

Trade has settled back into its old groove again, with prices about steady at the figures prevailing before Easter. Owing to the fact that butchers filled up with large supplies for their Easter trade they have been very slow buyers during the past week, and little or no stock changed hands.

Cattle.—Trade in all lines is rather quiet just now, no doubt due to the near approach of the opening of navigation, although a little buying has been steadily going on for export; but as there are only two steamers due to leave Portland yet to carry cattle, there will hardly be more buying until steamers leave this port (Montreal).

The range of prices paid for export account has been around 4c. to 4 1/2c. per lb., the last being only for something very fancy. There does not seem any immediate probability of prices for export cattle being any higher; in fact, indications would seem to be the reverse from the slump which has taken place in the British markets.

was practically given away, quite a number making no more than fifty cents and very few realizing more than \$4 or \$4.50 each.

Space.—The space market is strong and all the Glasgow and Bristol space for the months of May and June has been taken at 45 shillings. London and Liverpool mostly taken at rates from 40s. to 42s. 6d.

Hides and Skins.—This market is still in a very unsettled state and the present prospects would seem to point to an early drop in values. This has already taken place in so far as calfskins are concerned, the price this week dropping one cent per pound, from 10c. to 9c. per lb. for No. 1; 8c. for No. 2. Whether these rates will be maintained is another matter, as we believe dealers will be compelled to again advance them. Green salted hides, heavy and light, are worth to butchers for Nos. 1, 2, 3, 9c., 8c., 7c. per lb.; sheepskins, 75c. to \$1 each; lamb skins, 10 cents each.

The British Markets.

A drop of a 1/2c. to 1c. per lb. was followed by another decline of 1c. per lb., and best States beef is now quoted at 11 1/2c. per lb., while Canadians and Argentines are making 10 1/2c. to 10 3/4c. per lb. Sheep were also weaker and declined a 1/2c. per lb., top now selling at 12c. This is not a very bright prospect for those shippers who jumped into the market recently, paying upwards of 5c. per lb. in the country.

Montreal Horse Market.

There is not a great deal doing in the trade, as shippers are waiting for space from this port. But one very gratifying feature is the steady and sure advance in the price of good horses, which are most decidedly becoming rather scarce. Sales during the week have ranged all the way from \$75 to \$100 for good shipping chunky horses; heavy drafts \$90 to \$125; and carriage and saddle beasts from \$75 to \$175—quite a range, but called for by actual sales.

Chatty Stock Letter from Chicago.

(BY OUR SPECIAL CORRESPONDENT.)

Following are the current and comparative prices for the various grades of live stock:—

Table with 5 columns: CATTLE, Present Range of Prices, Top prices Two weeks ago, 1896, 1895. Includes Mixed, Heavy, Light, Pigs, SHEEP, Natives, Western, Texas, Lambs.

Supplies of cattle are surely very scarce, and there is a strong demand, but conservative people think the price are so much higher than a year ago that there is little chance for much advance. The cattle buyers are having a hard time to conceal the fact that they are very anxious about future supplies of fat cattle. At the same time the Eastern and foreign outlets must improve before prices can go much higher. Beef prices are now high enough to materially check consumption.

It is claimed that the supply of pure-bred cattle has not been so small in fifteen years. The inquiry is broadening steadily, but there are no signs of a crazy boom. The two- and three-year-old Hereford bulls are selling at \$75 to \$150 about here, or at least 50 per cent. higher than at the first of the year. Grade Hereford bulls have lately sold at about \$65 per head.

As tending to show the disposition of expert feeders to work along the line of early maturity, the following sale of Herefords, with comparisons, is interesting: There was sold a load of 1,450-lb. Hereford steers at \$5.50. They were raised and fed by Samuel Weaver, of Forsyth, Ill., who has marketed cattle here the last half of April for many years. A year ago he obtained \$4.75 for 1,626 lb. steers. Two years ago, 1,454-lb. steers, \$6.25; three years ago, 1,618 lbs., \$4.50; four years ago, 1,653 lbs., \$6.35; five years ago, 1,696 lbs., \$5.05; and April 30, 1891, two loads of 1,635-lb. steers sold at \$6.40.

April receipts of hogs reach about 530,000, against 608,674 last April, 485,000 in April, 1895, and 559,936 in April, 1894. May and June receipts are generally estimated at 1,200,000, against 1,365,108 in May and June, 1896; 1,231,273 in May and June, 1895; 980,045 in May and June, 1893; and 1,439,301 the corresponding two months of 1892, the largest on record for May and June.

The hog market is in good shape for feeders, but the packers are complaining. The explanation for the premium of live hogs over the cured product is said to be that several of the packers are short of hams, and these have advanced faster than any other product. The result is they have to take the hogs irrespective of their relation to ribs, pork and lard. The live animal is about 20c. per 100 over the basis of ribs.

There is soon to be established at the Chicago stock yards a large dipping vat for the accommodation of feeders who buy sheep that may be suspected of having scab.

Eastern wool buyers in Shoshone, Idaho, are offering 11 and 12 cents a pound for the wool on the sheep's back—against 4 and 5 cents a pound in sack last year.

Texas sheep are now being crowded to market very fast. A man just returned from Texas says the supply has been pretty well bought up at high prices.

There is a difference of about 25 cents between shorn and woolled sheep, and 40 to 50 cents between lambs of the respective classes.

A bay driver of extra quality sold to Max Rosenberg to go to Germany at \$300.

Samuel Cozzens sold the black six-year-old gelding, Dr. Malone, to A. J. Arnold, of Rochester, N. Y., for \$1,900.

Chicago is the largest horse market in the country now, and has large attendance of buyers from seven or eight foreign countries.

There is quite a battle between the stock men and the hide and leather men as to the position of hides in the new tariff law.

The war flurry had some effect upon the speculation markets in hog products.

Canadian Fair Dates, 1897.

Table with 2 columns: Location, Dates. Includes Stanstead, Montreal, Toronto, London, Ottawa.



Woman's Dress on the Farm.

BY LAURA ROSE.

My talk is not to be on the latest cut of a skirt or the newest development in sleeves; neither do I wish to speak of spring jackets or summer bonnets; but just to offer a few homely suggestions on the necessity and comfort of proper everyday apparel.

The clothes we wear have vastly more to do with our mental and physical condition than we give them credit for. A woman feels better, works better, and looks better, when conscious of the fact that she is neatly and suitably dressed for her work, and her appearance has an influence on all with whom she comes in contact. How often the opinions we have formed of our friends change, for better or for worse, after we have made their acquaintance in working-day clothes. It behooves us at all times to be at least presentable.

Beginning with underwear, nothing can be nicer than the combination suits—chemise and drawers in one piece—thus doing away with unnecessary bulk and bands about the waist. Fine natural wool combinations can be bought for \$2.00 a suit for winter wear, while serviceable cotton or flannellette homemade ones answer for summer. The winter undershirts should be warm but not weighty, and in the warm weather some good washing material should be used, and they should be worn short. As far as possible I would strongly advocate wearing washable dresses while working in the kitchen. A dark print made with ordinary width skirt is preferable to a wrapper, which seldom looks neat, and the former is more easily laundered. Above all things avoid wearing cast-off Sunday clothes. Nothing gives one such an untidy, slovenly appearance as spotted, dusty velvet or threadbare silk trimmings on a basque in which you churn, bake, etc. If it is necessary to wear discarded "better clothes," make them over so as to be more in keeping with your work.

Always wear an apron while in the kitchen. It is a good plan to have two on hand at once—one for baking and at meal times, the other for doing the dirtier work. And now I must get down to the "understanding," which is really the most important. Many women think any shoes are good enough for wear in the house in the morning, and so wear old, high-heeled slippers or thin-soled, run-over boots, and then when their backs ache or their feet and limbs are tired and swollen they attribute it to a hundred and one causes other than the right one—improper footwear. Get boots on purpose to wear while working. They need not be expensive, but to insure health and comfort they must allow the feet ample room, and have thick soles and low heels. I must emphasize the low heels; the high ones are so tiring and injurious. Laced boots are preferred to button ones, as they support the ankles better.

A dusting-cap (a round piece of print, 18 or 20 inches in diameter, with a casing for an elastic two inches from the edge) is especially needful at this housecleaning season. While protecting the hair from dust, it often conceals the unsightly curl papers or the hurriedly arranged coiffure. This winter I made one from some old fine black cloth, and found it just splendid for running about outdoors, hanging out clothes, etc. It cannot blow off and is a protection to the whole head. Then there are two other conveniences—a large pair of old rubbers and a pair of mittens kept near the door so as to be easily slipped on and off when going for wood or water, if the good man of the house allows you to do such work! You may consider these little things a trouble, but when once you are accustomed to them you'll find that after all it pays, for it is often through thoughtless exposure that colds are contracted, especially at this season of the year. By keeping the head covered and the hands and feet warm and dry, much sickness may be averted.

"Our remedies oft in ourselves do lie,
Which we ascribe to Heaven."

Indecision.

Of all people who provoke us few are more tiresome than those who will never do anything thoroughly. Their actions are incomplete. A natural deficiency of brain structure mars their deeds. They leave the door open; they always remember something to be done just as they are leaving the house, and spoil the effect and good augury of the departure by running back for a pocket-handkerchief, a memorandum book or a final order to the waiter. But the worst of it is they won't let others do what they want right off. A matter has been settled. It is an immense fact and saving of time to accept decisions; it clears the way. A small thing done is sometimes better than a big one prepared or in preparation. These hesitating tempers, however, won't let the small thing do itself. The matter, as I said, has been settled, dismissed. Then they say, "Oh! but—" The luckless decision is caught by the last joint of it's tail just as it was going steadily and safely out of the room—caught by the last joint

of it's tail, pulled back all flustered and rampant, to have a smut rubbed off it's nose. Plague on it, let it go with the smut! As it is, the charm of the launch is spoiled. These people, too, won't eat or drink in a complete way. They put back, ask you to take back a piece. They will have "only half a glass, please." They will be helped "presently." They affect a combination of meals, tea and dinner, say, and a cloth over half the table. They mourn over a wholesale clearance of old papers. They dread nothing more than a final decision of little things; and, whatever they do, seem to leave some part of it designedly unfinished.

MINNIE MAY'S DEPARTMENT.

MY DEAR NIBBLES,—

All nature is awakening from the rest and sleep of winter, whose ice-bonds, unable longer to resist old Sol's genial rays, have reluctantly broken. The trees are putting forth green leaves, and soon will be again clothed in all their beauty. The pretty feathered songsters are trilling their lays among the branches, gladly proclaiming the return of spring while busily preparing for their tiny house-keeping.

We too must awaken from the comparative rest and inactivity of winter, for there is plenty of work to do. Housecleaning is the first obstacle we meet in our path, but it need not possess any terrors for us if we set about it properly.

There is not the slightest necessity for turning the whole house topsy-turvy, and thereby making everyone in it uncomfortable. Nothing so exasperates a tired man as to come home and find everything in a state of disorder, and it will certainly raise his opinion of his wife's executive ability if he finds the house freshened and brightened without the general domestic arrangements having been disturbed. This can easily be done by taking one room at a time, and as soon as it is finished replacing everything.

In cleaning any room, after the carpets and furniture have been removed, the proper order is to begin with the ceiling, then take the walls and windows, and lastly the floor. Kalsomine or whitewash dries more quickly when exposed to free drafts of air, the windows and doors being thrown wide open for the purpose.

The cellar is the first place that should receive attention, especially if, as is very often the case, any vegetables have been stored there during the winter. These should be removed very early in the spring and the cellar thoroughly cleaned, receiving a good coat of whitewash. Not only now, but at all times, the cellar should be kept scrupulously clean. If this is not done the health of the family is much endangered.

For bedrooms, especially in summer, matting or rugs are to be preferred to carpets, as they can be easily cleaned or often shaken and aired.

To clean matting, add a pint of salt to half a pailful of water, then wash and dry quickly with a soft cloth.

To brighten the colors of your carpets, and also instead of so much sweeping with a broom, which always removes considerable wool, take a pailful of clean hot water to which has been added a tablespoonful of ammonia, then with a soft cloth (old knit underwear answers very well, as it can be wrung dry) kept for the purpose wipe your carpet all over. If this is frequently done the surface dust is removed and prevented from sifting through, and your carpets will look better and last longer.

If very much soiled, a good cleansing preparation is made as follows: Dissolve four ounces of white castile soap (or any pure make) in four quarts of boiling water. When cool add five ounces of aqua ammonia, two and one-half ounces of alcohol, two and one-half ounces of glycerine, and two ounces of ether. Keep tightly corked. To clean a carpet, use about a teacupful to a pail of water. A rather soft brush may be used to apply it.

This preparation may also be used to clean black garments by adding two tablespoonfuls to a pint of strong black coffee.

To remove grease spots, use without diluting. With a little stain (which you can easily make from some of the best dyes) and varnish you can make old wooden or wicker chairs, which have become shabby from any cause, look new and bright.

Mahogany color is very popular and gives a handsome effect on any article of wicker or wood work.

All furs should be well beaten and aired; and if you have not cedar chests in which to put them, you will find the long mothproof paper bags which are made for the purpose very convenient, as after filling them they can be hung away in a closet without any fear of the contents being molested by moths.

Whether housecleaning or whatever the work you have to do, take a lesson from the birds that sing so merrily, by going cheerfully about it.

How much easier everything seems when you sing as you work.

Learn to do the most important things first; and if your strength ebbs, learn to let the minor things wait. Try to get something out of life for all you put into it. Enjoy something to-day, for tomorrow may not be yours. We ought to get more than an existence with such help as song and sunshine, laughter and friendship.

MINNIE MAY.

THE QUIET HOUR.

A Word.

A word, and the skies grow darker;
A word, and the clouds roll high;
A word, and the soul lies stricken,
And hurt hearts grieve and sigh.

A word, and the skies would brighten;
A word, and the clouds would fly;
A word, and the soul finds healing,
And hurt hearts cease to sigh.

Oh, word, ere too late, be spoken!
Let the threshold of silence be crossed,
Ere the thread of thy fate be broken
And thy chances forever be lost.

Cheery Words.

Cheery words cost little, but how much good they do; how they drive away melancholy, banish gloom, and alleviate pain! The man who goes about saying them is the world's benefactor. Society is the better for his living. Many a lifetime hardly seems worth living to the hard beset, who have found trouble and sorrow, to whom the winds of fate have brought loss and wreck, or who have parted with their faith in humanity. At the period when they can scarcely lift their eyes from the ground, along comes, with his smile, and his cordial hand, and his look of genuine interest, one of those good souls whose errand seems to be to uplift his fellows. He does not say very much—nothing perhaps which can be remembered or recorded; but he leaves an impression of good-comradship, of sympathy. The person he meets is encouraged, and passes on with renewed strength to meet whatever there may be to encounter.

In the immortal "Pilgrim's Progress" there are certain characters who always enlist our pity, among them Mr. Despondency and Miss Much-Afraid. They have no outlook beyond the present disaster or the impending calamity. It is sorrowful to watch their stumbling and delayed progress, and to realize that they are typical of a throng of men and women handicapped by diffidence or encumbered by hardships, so that a joyous confidence is lacking to them. To such persons the speaker of the cheery word is a true missionary, brightening the dark day and giving them a moral and sometimes what is equivalent to a physical support.

A loving word is always a safe word. It may or it may not be a helpful word to the one who hears it; but it is sure to be a pleasant memory to the one who speaks it. Many a word spoken by us is afterwards regretted; but no word of affectionate appreciation to which we have given utterance finds a place among our sadly remembered expressions. Looking back over our intercourse with a dead friend or fellow worker, we may indeed regret that we were ever betrayed into a harsh or hasty or unloving word of censure or criticism in that intercourse; and we may wish vainly that we had now the privilege of saying all the loving words that we might honestly have spoken while she was yet with us. But there will never come into our hearts at such moments a single pang of regret over any word of impulsive or deliberate affection which passed our lips at any time.

A little explained,
A little endured,
A little forgiven,
The quarrel is cured.

The Master's Questions.

Have you looked for sheep in the desert,
For those who have missed their way?
Have you been in the wild waste places,
Where the lost and wandering stray?
Have ye trodden the lonely high way,
The foul and darksome street?
It may be ye'd see in the gloaming,
The print of My wounded feet.

Have ye folded home to your bosom
The trembling neglected lamb,
And taught to the little lost one,
The sound of the Shepherd's name?
Have ye searched for the poor and needy,
With no clothing, no home, no bread?
The Son of Man was among them—
He had nowhere to lay His head.

Have ye carried the living water
To the parched and thirsty soul?
Have ye said to the sick and wounded,
"Christ Jesus makes thee whole?"
Have ye told My fainting children
Of the strength of the Father's hand?
Have ye guided the tottering footsteps
To the shore of the "golden land"?

Have ye stood by the sad and weary,
To soothe the pillow of death,
To comfort the sorrow-stricken
And strengthen the feeble faith?
And have ye felt, when the glory
Has streamed through the open door
And flitted across the shadows,
That there I had been before?

Have ye wept with the broken-hearted
In their agony of woe?
Ye might hear Me whispering beside you,
"His the pathway I often go!"
My brethren, My friends, My disciples,
Can ye dare to follow Me?
Then wherever the Master dwelleth,
There shall the servant be.

We know not half the power for good or ill
Our daily lives possess o'er one another:
A careless word may help a soul to kill,
Or by one look we may redeem our brother.

'Tis not the great things that we do or say,
But idle words forgot as soon as spoken;
And little thoughtless deeds of every day
Are stumbling-blocks on which the weak are broken.

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"On an Eastern River."

Oriental women have always been celebrated for the beauty and grace of their face and form, and certainly that reputation has not suffered in the hands of the artist Bredt, judging from his picture, "On an Eastern River."

The beauty of the fine oval countenance of the girl in the bow of the boat is enhanced by the large black eyes of an almond shape, with beautiful long lashes, and an exquisitely soft, bewitching expression in their depth; no doubt their charm has been heightened by blackening the edge of the eyelids (both above and below the eye) with a black powder called "kohl," which is a universal custom amongst the females of the higher and middle classes, and not uncommon amongst the lower orders. Kohl is made from the smoke-black produced by burning almond shells; it is supposed to be beneficial to the eyes, but it is used merely for ornament, and is applied with a small probe of ivory, silver or wood, tapering to a blunt point. This point is first moistened in rosewater, then dipped in the powder and drawn along the edges of the eyelids. The custom of thus ornamenting the eyes prevailed among both sexes in Egypt in ancient times, as well as amongst the Greek ladies and Jewish women. They also stain certain parts of their hands and feet—which are, with few exceptions, most beautifully formed—with the leaves of the henna tree, which imparts a deep orange color. Many dye only the nails of the fingers and toes, some color the first joint, and there are also various fanciful modes of applying the henna. The paste is spread in the palm of the hand, and the fingers closely pressed into it; then the hand is tightly bound with linen and remains thus during the night. This treatment has to be renewed every two or three weeks. It imparts a brighter and clearer color to the nails than to the skin, making the general complexion of the hand and foot appear more delicate.

The dress of the women of the higher classes is very handsome. The shirt of colored crape is very full, reaching to the knees; a pair of very wide trousers of striped silk are fastened round the waist under the shirt, the lower extremities being tied just below the knee with running strings, but made sufficiently long to hang down to the feet when fastened in this way; over this is worn a short vest, cut in such a manner as to show the full shirt.

The headdress is a tightly-fitting cap with a square kerchief of crape wound round it. A jewel called a "Rurs" is worn directly in the front, and it is also richly adorned with other ornaments. A long piece of white muslin embroidered in colored silks and gold spangles is fastened to the back of the headdress and reaches below the waist; and hanging down either side in front is the "mizagee," a strip of rose-colored muslin, folded several times to form a narrow band, thickly wrought in silk and spangles, and terminating in heavy tassels of gold and silk.

The hair is divided into numerous braids—always an uneven number—to each of which is attached three black silk cords with ornaments of gold, jewels, etc., hanging from them.

Few Oriental ladies wear socks or stockings; some of them wear inner shoes of red morocco, called "mezz," over these they put slippers of yellow morocco, with high-pointed toes, usually ornamented with mother of pearl or silver.

Most Oriental females are fond of trinkets, and the richly-jewelled necklaces and the broad bracelets of flexible Venetian gold worn by ladies of high rank are imitated in brass and copper, set with opaque glass beads, and worn by the lower orders and slaves.

With all these details Bredt was evidently familiar, when he so faithfully portrayed them in his painting, "On an Eastern River."

Very Unusual Burial Service.

One of the strangest coffins ever told of is that for which the British war department is responsible.

The story is that a workman, engaged in casting metal for the manufacture of ordnance at the Woolwich Arsenal, lost his balance and fell into a caldron containing twelve tons of molten steel. The metal was at white heat, and the man was utterly consumed in less time than it takes to tell it. The war department authorities held a conference, and decided not to profane the dead by using the metal in the manufacture of ordnance, and that mass of metal was actually buried and a Church of England clergyman read the service for the dead over it.

Mamma—How cruel, Eleanor, to hurt the poor little worm! Eleanor—But he looked so lonesome, mamma, an' I just cut him in two so's he'd have company, an' the two of him wiggled off together just-ever so happy.

THE CHILDREN'S CORNER.

Slyboots.

(Continued from page 185.)

When Slyboots got home he found all his family as sulky as bears. They said they had quite given up expecting their father to bring anything, and had been forced to eat frogs. Slyboots submitted very meekly to their complaints. The son and heir was sure that Rosytoes must have been somewhere and should have been found.

"You male creatures have no sense," said Mrs. S. "Now I should have seen at a glance that that old hen was not to be taken in. I should have understood her character from the expression of her eye."

"It was nearly dark in the wood shed," said Slyboots; "besides, the old hen's back was towards me. I never saw her eye at all."

"Oh, of course there's always some good excuse," answered his wife; "but all the excuses in the world won't make us a breakfast."

All day long the old fox plotted and planned, and when night came he trotted briskly off to his work.

In the dead of night Chanticleer and Partlet were suddenly roused from sleep by a shrill voice in their ears:

"Oh, dear! oh, dear! What is to be done? There is a whole gang of thieves coming into the farm!"

"Hey! What! Thieves in my yard?" cried Chanticleer, half asleep, and bustling round on his perch. There was Slyboots just outside the wood shed, the moon shining on his scared countenance. In a second he was off, and then returned in greater agitation than before.

"They are just coming round the corner," he cried, "and one of them has a light in his hand. They are going to set fire to the farm buildings!"



"ON AN EASTERN RIVER."

Oh, valiant cock, come down, come forth, and give one of your magnificent crows. It will rouse the neighborhood, disperse the thieves, and save the farm. I will run on and bite their heels. Oh, if I had but your lungs!"

Off he went again, and Chanticleer raised his wings with dignity and prepared to descend from the perch. "The rascal is quite right," said he; "it's the only thing to be done—set a thief to catch a thief."

"Wouldn't it do if you were to give a good loud crow in here, where you are?" asked Partlet, trembling.

"Pooh!" answered her husband. "What on earth would be the good of that? What fools hens are, to be sure!"

These were the last words he ever uttered. Down he flew, stalked majestically out of the wood shed, mounted on a large stone, arched his neck, and gave a tremendous "Cock-a-doodle-doo!" Slyboots was lying close by, and, when the cock opened his mouth to repeat the performance, pounced upon him in a second. Off he sped, dragging his unhappy victim with him; and away he went, over stock and stone, never pausing till he dropped his precious burden in the burrow.

"Oh, my dear husband!" cried Mrs. Slyboots, "embrace me!"

Cubby danced about with delight, and the son and heir shouted, "Oh! you jolly old cock!" but whether these words applied to his father or to his prize, was not clear. The scene that followed can hardly be described. After several days of starvation, they went to work with savage joy. Cubby seized the head, his brothers tore away at the wings, while their mother waited anxiously for the remnants of the feast. As for Slyboots, he had to content himself with knowing that "Virtue is its own reward." He felt that he had done his duty nobly as the head of the family; and if the distress and desolation of another family resulted from his success, why that was nothing at all to him.

B. FRANCIS.

Practising.

Ten little troublesome fingers,
Ten little finger nails—
Pattering on the piano,
Scattering over the scales,
Clicking, and clacking and clattering,
Each in the other one's way
What trying and sighing and crying
To teach little children to play!

To play? I call it working,
When ten little fingers like mine
Are bumping and clumping and thumping,
And never will fall into line.
They fumble and tumble and stumble,
They trip and they skip and they hop,
And just when the music is gayest
They come to an obstinate stop.

Do you think that mamma's pretty fingers
That sparkle and dance on the keys
While the music is rippling below them,
Were ever as clumsy as these?
I would work—I would patiently practise,
How patiently!—day after day,
If I thought that my practice and patience
Would end in such beautiful play
—St. Nicholas.

Never Give In.

Two frogs went out one day for a journey on exploration bent. Accidents will happen, however, to the best of creatures, and these two frogs unfortunately fell into a jug of cream. The sides of the jug were slippery, and, after a few unsuccessful attempts to jump out, one of them said: "It's no use. We cannot get out, and we may as well die soon as late."

"Nothing of the kind," said the other. "You can, of course, do as you like, but I shall keep on jumping as long as a spark of life remains in me. Who knows but that we shall succeed at last?"

This speech put new life into the despondent frog, and they both began to jump with renewed energy. Jump, splash, jump, splash, went on for some time, and then, low!

something happened. It was quite natural that it should. The cream began to thicken, and was at last churned into butter. The frogs then mounted to the top and succeeded in gaining their freedom!

Nil desperandum is an excellent motto for young folks when any work has to be done. Don't forget the frogs.

Throwing Cold Water.

Why is it that some people seem to take delight in constantly throwing cold water on everything? We have all met them; the men—yes, and the women, too—who will effectually extinguish the most sanguine man in the world with a few minutes' conversation. They seem to go about on purpose to dampen everybody's enjoyment. Their chief happiness seems to consist in making somebody else

anxious and foreboding. They are birds of evil omen, always expecting something dreadful is coming. They look for the cholera next year. The smallpox is on the increase. Nearly everybody is liable to paralysis. They like to read aloud the statistics of death and disease. They like to attend funerals. They are fond of talking over signs of death and ill-luck.

The crops are sure to fail this year, they invariably say if they live in the country. Hops will have the fly, potatoes will rot, and the wheat will be smutty. Epizootic will rage, colds will flourish—and colds generally end in consumption, they have observed. Or, if they live in the city, the banks are all going to break, and there will be a regular panic.

The man who likes to throw cold water will stop you on the streets and enquire after your health, and he will tell you that you look just like his friend Simpson did, and Simpson died of apoplexy when he was just about your age—ill only three hours, and left an inconsolable wife and eight small children. He says you look bilious, and remarks that his mother had just such a complexion a few days before she was taken down with typhoid fever.

If you contemplate going on an excursion into the country, he is sure it is going to rain—he never knew clouds like those in the south to fail of bringing wet weather. If you are going to ride, he will tell you that the roads are in a fearful condition in certain parts of the country, where the scenery is most inviting.

If you have any particular friends, and happen to speak in their favor, he will roll up his eyes and sigh, and remark that if you only knew what he knows; and then he sighs again, and says desperately, "Well, we are all poor creatures!" And when you insist upon being told what he knows, he sighs louder and more dismally than before, and says that it is against his principles to say anything to injure anybody, or to make them feel unhappy. What are we going to do about these aggravating throwers of cold water? Is there any possible way of making them see themselves as others see them?

A Talk on Table Manners.

SENSE FOR THE OVERRERRED AS WELL AS THE UNDERRED.

There are many tests in society of good breeding, but truly there is no surer one than that of table manners.

So, just a word as to those tell-tale attributes. All the world knows that, primarily, the knife was not intended as an implement to convey food to the mouth; that it is an unwritten law that soup should not be eaten from the end of the spoon, and that the use of a toothpick at table is an abomination in the sight of polite society.

Who does not know the agony of sitting at the table with one who gives audible evidences of the enjoyment of his food? Or—and this, perhaps, is the gravest crime of all—who has not suffered from being obliged to sit with one who does not realize that the use of the handkerchief is a rite of the toilette which requires privacy as much as does the manicuring of the nails or the dressing of the hair.

Emerson, a perfect type, always and under every circumstance, of a true gentleman, has not disdained in his essay on "Manners" to say a word as to table etiquette. "I pray my companion," says the philosopher, "if he wishes for bread to ask me for bread, and if he wishes for saffron or arsenic to ask me for them, and not to hold out his plate as if I knew already."

Again says the Sage: "The maiden at her first ball, the countryman at a city dinner, believes that there is a ritual according to which every act and compliment must be performed or the failing party must be cast out of this presence. Later they learn that good sense and character make their own forms every moment and speak or abstain, take wine or refuse it, stay or go, sit in a chair or sprawl with children on the floor, or stand on their head, or what else soever in a new and aboriginal way; and that strong will is always in fashion, let who will be unfashionable. All that fashion demands is composure and self-content."

Is not that a whole chapter on good manners? What does it matter if we do not know the use of this or that fork or spoon in the perplexing array to left and right of our cover? A forgivable mistake, the use of the salad for the fish fork, if it be accompanied by serene self-composure!

The law of table etiquette is fundamentally the law of all good-breeding—that we do unto others as we would be done by!

Again, I agree with Emerson, who says: "I could better eat with one who did not respect the truth of the laws than with a sloven and unrepresentable person." And if it was worth while for the greatest philosopher of our age to give time and contemplation to such matters as table manners, is it not worth while for us, too, to give them some thought, so that we may fulfill the first law of good breeding, which is none other than union of kindness, independence and gentleness?

Disadvantages of the Farmer's Wife.

Some time ago, when one of the travelling dairy outfits was in Southern Manitoba, a farmer was building a kitchen to his house. His wife wanted him to put a cellar under the kitchen, so as to afford a separate compartment for keeping the milk from that in which the vegetables were kept, and also for convenience, as it adds very much to the work when all the milk has to be carried through the dining-room and taken down cellar, which is got at in the common way—through a trap-door in the floor, with a rickety ladder as a substitute for a stairway. But this farmer was like the majority, slipshod and easy-going, and considered the easiest way of completing his job the best. The good wife got angry and threatened to make a public exposure of the disadvantages of a farmer's wife, telling these dairy lecturers that it was not knowledge we wanted so much as a chance to put what we knew into practice. The wonder is there can be any good butter made when so many farmers' wives are obliged to set their milk in musty, dusty, unventilated holes under rickety kitchen floors in summer time, and on pantry shelves in winter where it freezes at night and thaws in the day time, all the time absorbing the flavors of cooking, etc. Threatened thus, the farmer promised to build a nice milk house, but as yet his promise has not been kept. I believe if every woman was to strike for better accommodation and reasonable house improvements, it would be the beginning of better times. Until an improved lot of men help their struggling wives and daughters by providing better facilities for carrying on their part of the work there cannot be anything but discontent. If any farmer's wife can suggest a better way of awakening the blind and stupid, let us hear from them. How would it do to have the municipal assessor appointed inspector, with instructions to report on the conditions of every household? It wants something of this kind to create a movement among the "dry bones." As long as we women are willing to put up with the inconveniences we will be allowed to do so, and we are told for consolation that "we have just as good as those around us." Trusting this subject will be discussed in your columns, I am, "ONE OF THE UNFORTUNATES."

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

The glad Easter-tide has come, and spring in the fullness of her beauty is with us again. The russet shades of the bursting buds have brightened into green, as the embryo leaves have asserted their rights and forced themselves into view.

The hepaticas—daring little beauties that, like the ferns, spring up bravely almost before old Jack Frost has been put to rout—have given place to the fair, frail Mayflowers, the more gaudy dog-tooth violets, and those charming emblems of innocence, the snowy lilies. Every hour of the gladsome day is enlivened by the busy chirp of the robin red-breast, the saucy notes of the blackbird, and the sweet song of the quaker-like graybird, for these are the first feathered friends to greet us after the departure of winter.

Everywhere the soft young grass comes creeping up, for everything, you know, must be in the fashion—green is the favorite shade at this season. Everything speaks of life, joyousness, hope, faith and worship; or as Coleridge more eloquently expresses it:

"Earth, with her thousand voices, praises God." Yes, this is the season of life, for now does nature renew herself; of joyousness, for who could be sad surrounded by beauty and song and of hope and faith; because every seed cast into the earth is a proof of our having both—hope that it may fructify, and faith that it will do so. And having life, joy, hope and faith, how can we fail to make it a season of gratitude and praise.

Has not the contemplation of the triumphant resurrection of over eighteen centuries ago, which we have so recently celebrated, inspired you with the ambition to imitate, each in his feeble way, that glorious event? You understand what I mean—the dying to all old failings and the resurrection to a newer, better life!

Tennyson says that we may rise to nobler things by using our dead selves as stepping-stones, and Longfellow echoes the sentiment when he says:

"We rise by things that are under our feet, By what we have conquered in greed and gain, By the pride deposited and the passion slain, And the vanquished hills we hourly meet."

Taking these words to cheer us, let us not squander this bright season in vain regrets for past failures, but rather make them serve as stepping-stones to nobler things.

How many of you intend having a flower-bed this summer? I am, and had my seeds started indoors early in April. Come now, which of us shall have the best account to give three months hence? Last year I had pansies and sweet peas to give to all comers, and one day I counted 78 bloom-stalks on one plant of the latter; and as each stalk had from one to three flowers on it, it was indeed "a thing of beauty" and a joy as long as it lasted. But perhaps you'll say it is too much trouble to cultivate flowers. Well, yes, it is a little, but one forgets that in the delight of possessing the fragrant beauties. And how a bowl of brilliant peas, a mass of glowing nasturtiums or a plate filled with pansies brighten up a room! Trouble!! Why it sinks into utter insignificance when compared with the pleasure the flowers give.

But bless me, boys and girls, if I begin to talk about flowers I'll never stop, and we're always so crowded in this little work of ours that I've only space for a word about our puzzles. Now don't you think our Corner is improving? Why the original puzzles are quite clever, and I'm sure Cousin Ada must find it difficult to choose from so many good ones. I'm not so well satisfied with the number of solvers, but I hope that too will soon improve. I always find a place for new visitors and give them a cordial invitation to come again.

So one and all, Little and tall, Just call into the 'Dom; You're sure of meeting A hearty greeting From your old—

UNCLE TOM.

Puzzles.

All matter for this department should be addressed to Ada Armand, Pakenham, Ont.

1—ANAGRAM. "Into each life some rain must fall," The poet wrote; and we, Who've only tasted the cup of gall, Are cheered in our misery, That He, who observes the sparrows fall, Can give us sympathy.

Maybe the road of life is rough To our feet all torn and bare; We feel our woe is deep enough, And long for a friend to share; But we meet with a heartless, cold rebuff, And fainting breathe a prayer:

"Give us but sympathy and love, To satisfy the breast!" And downward, fluttering as a dove Escaped the eagle's nest, We fall, as answers from above, "On earth there is no rest!"

Then our bleeding hearts we hide from sight; Complete we resume our way; And strive to make some burdens light, And teach some hearts to pray; Then our "CIRCLE DONE," the joyless night Will end in the perfect day.

CHARLIE S. EDWARDS.

2—LOGOGRIPH.

My first is a "fairy," transpose and you'll see The mystical "line" wealth the greenwood tree; So, if you would view the elves at play, Make haste to the forest ere it is day; Curtailed, you'll find that the sun doth "deprive" Of what the blackness of night doth connive; Hehded, and those that so "lightly run" At night's witching hour, have gone every one. Now, make as the second, and twice hehded, And, as a night to "perfection" is onward sped. Once more transpose, and on the green Sports a "Persian envoy" to the Queen.

C. ROBINSON.

3—SQUARE WORD.

- 1.—An island where oppression has reigned.
2.—An emblematic bird for their oppressors.
3.—A name for the action when Greece conquers Turkey.
4.—With regard to the state of Turkey something that will soon end.
5.—A name for the action when the Greek army enters Turkey.

W. S. BANKS.

4—HIDDEN RIVERS.

- 1.—Mamma rose early this morning.
2.—He came home late last night.
3.—He is well and able to go out of doors.
4.—Lord Aberdeen is Governor of Canada.
5.—Is that little boy near home?

MAY MCNIE.

5—ANAGRAM.

I was down in the kitchen learning to cook (I am very young you see), I was trying recipes out of a book, And was busy as busy could be.

Dough, milk, sugar and eggs, In utter confusion lay; My playthings lay neglected on page— I was bound to succeed that day.

Along came that horrid boy, Sam Hall, And gave me a poke in the ribs, Saying, "Babe you cannot cook at all," Said I to him, "S. Hall jbs."

ETHEL MCCREA.

6—HIDDEN CITIES.

I was a debtor on toll And far away did I stroll; I tried Liber mud, And it did me much good, So my lengthy trip I'll extol.

From King St. on Monday I left, Of kin and kindred bereft; A mad racial I, Most ready to die, And that made me pretty near daft.

A bomb, ay! a boom did explode, A little too near my abode; So with that hen, see! Now listen to me! On a piece of the bomb home we rode.

A. P. HAMPTON.

7—DOUBLE LETTER ENIGMA.

In hide but not in seek, "river" " " " creek, "survive" " " " die, "divide" " " " multiply, "pint" " " " gill, "letter" " " " bill.

New puzzlers take me at my word, My whole is a person from whom you've heard. ADDISON SNIDER.

Answers to April 1st Puzzles.

- 1—Harrow—arrow—row.
2—For—tune.
3—Charlottetown.
4—Ramage.
5—The letter W.
6—A tree.
7—Band—hand.

SOLVERS TO APRIL 1ST PUZZLES.

Clara Robinson, A. P. Hampton, Orrilla M. Sullivan, J. S. Creerar.

How Scarlet Fever May Be Spread.

Prof. W. M. Williams gives the following experience as to the spread of scarlet fever: One of his sons went for a holiday to a farm where his family had often gone for their holidays. At the end of two weeks he was attacked with scarlet fever. On inquiry it was found that the cowboy had been ill with the disease (a light attack), and went to milking before the process called scaling of the skin was complete. Prof. Williams' son had been drinking freely of milk, and no doubt drank of the germs which had fallen into it from the cowboy's hands and multiplied there by growth. The other inmates drank only homemade beer, or tea and coffee, the latter of which were hot enough to kill the few germs taken in the small amount of milk used as a seasoning. Had the milk been sent to any city for consumption, no one can tell how many people would have suffered from it. Diphtheria and typhoid fever have been spread in the same way. The lesson is, be careful how you use milk when these diseases are in the home.

Training Schools for Servants.

House servants need an education in the work they are to do—a training for it. I have sometimes wondered why women do not start schools in every city in which to train servants as has been done for cooks, shorthand writers and bookkeepers. They might start a new business in this way. The girls who graduate with all the knowledge needful would soon find places. A majority of our servants have only such knowledge as they pick up in odds and ends. It is never complete. Some servants have a genius for their work and don't need much training, but most of them are of another kind. I do not know how soon it will be, but I know sometime, and I think soon, a servant will have to graduate from some school before she can get a position, just as a bookkeeper does. It would add much to the health of our women and children and to home life if this was the case now.

BABY WARD

For 26 different clothes with fulling, showing neck, most post-paid for pamphlet "K..."

STEAM ENGINEERING

(Stationary, Marine and Locomotive). Mechanical Drawing, Electrical, Architectural, Drafting, Plumbing & Heating, Civil Engineering, Surveying & Mapping, English Branches, Book Keeping.

Mr. John I. head of Short \$100.75 per he IS bulls brow was the top female.

Thos. Allin elsewhere tw for sale—choi bulls and froi Gloucester Johnstone's, Allin Bros. M

A. & G. R. sales of Holst Bull calf to wred by Sir I then nearest per week. M

Oxford Barx taken his dae her daughter Mottle, a fin Daisy Texal but conclude the best and as noted. V

the fine but Reid, Perth mont 3rd th at Guelph f her dam, Iol in Ohio, 189 milk testing butter. His Fair and ma promising a quires for will sell no ling bull an sold—registe sold eight 1 months."

Every sell his or her weight of ev or per ton. make it safe who do busi them to det and sure me own reliable One of the form scales other stock should kno profit from Burrow, Ste have to offer

Messrs. I. facturers, Q their adver ers will do competent i floor, silos, of cement is structures their instru informs us silos will be tions to lay John Dryc Ontario, on E. McMille to be 20 ft. for cement that parties arrangements two points, gently ca must be cle clay or m early so th time to " these point attended to sult is cert

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of our fillie the champ ber of Hael calves, and D. &

SHORTHORNS FOR SALE

18 Young bulls (12 red and 6 roan), also 20 red heifers, bred from the best Booth, Camp...

J. & W. RUSSELL, RICHMOND HILL, ONT.

FOR SALE! Good Young Cows

two years old yearlings and heifer calves out of imported and home-bred cows...

H. CARGILL & SON, Station on the farm, Cargill Stn. & P.O., Ont.

W. G. PETTIT, BREEDER OF SHORTHORNS, SHROPSHIRE, AND BERKSHIRES

Offers for sale eight young Shorthorn bulls from 12 to 18 months old (4 reds and 4 roans)...

THE GRAND VALLEY STOCK FARM

G. & W. GIER, Prop., Grand Valley, Ont. Breeders of Shorthorns and Imp. Yorkshires...

Shorthorns!

TWO bulls, 20 months; two bulls, 15 months; one bull, 13 months; one bull, 10 months...

D. Alexander, BRIGDEN, ONT.

SIMMONS & QUIRIE

Shorthorn Cattle, Berkshire Swine—Money-making Sorts. The imported bull, BLUE RIBBON—17095—(65736)...

BELVEDERE STABLES

6 of my Best Jersey Cows. Kept for use of my own and daughter's families...

WILLOW GROVE HERD OF JERSEYS

Sweepstakes herd of 1893, 1894, 1895 and 1896. J. H. Smith & Son, Highfield, Ont.

The Etrick Herd of Jerseys

MESSRS. HUMPIDGE & LAIDLAW, Proprietors, LONDON, ONT. Herd Comprises 35 head of High-class Stock...

A. J. C. C. JERSEYS FOR SALE

Young cows and heifers in calf, heifer calves, bull calves, from rich and deep milking ancestry...

LIVE STOCK AUCTION SALES

Conducted in all parts of the country. Pedigree stock a specialty. Write for terms...

GOSSIP.

The U. S. Department of Agriculture is sending out to Experiment Stations and farmers a quantity of specially selected sugar beet seed...

The offering of Mr. W. C. Shearer as per his advertisement in this issue presents a rare chance to farmers or others keeping hens to commence with pure-bred poultry of an excellent strain...

Mr. J. Wilson Knight, B. S. A., a graduate of the Ontario Agricultural College, 1896, has recently been appointed to a good position as cheesemaker in Clay Co., Texas...

"The best is none too good" applies with special force in the selection of a male to head a herd, because his influence is to be stamped upon the offspring of succeeding generations...

Among the recent importations of Clydesdale stallions in the two-year-old Goldfinder II., by Goldfinder, a Highland and Agricultural Society first prize winner...

Mr. David Leitch, Grant's Corners, Ontario, in writing us instructions to change his advertisement, states that he has recently sold the following Ayshire cattle through advertising in the FARMER'S ADVOCATE...

J. E. Brathour, Burford, Ont.:—"The Oak Lodge herd is now in the best condition that it has ever been, and I have on hand over one hundred young pigs, which are, I think, the best quality that I have ever offered for sale..."

A NOTABLE CLYDESDALE PURCHASE

A happy purchase for Canada has been made by Messrs. Graham Bros., Claremont, Ont., from Mr. R. B. Ogilvie, Madison, Wis., of the magnificent three-year-old Clydesdale stallion, Young Macqueen 5033...

HEREFORDS SELL WELL

On April 14th Chillicothe, Mo., was literally crowded with Hereford cattle seekers, as that was the day of T. F. B. Sotham's annual spring sale. The "white faces" are in keen demand...

A Successful Sale and How Attained

Mr. John I. Hobson, Mosboro, Ont., writes: "Enclosed please find marked cheque for \$45, amount of your bill for advertising sale..."

Shire Horses!

We have a number of FILLIES, MARES IN FOAL, ALSO STALLIONS, FOR SALE. Imported and home-bred, all choice registered animals.

Morris, Stone & Wellington, WELLAND, ONTARIO.

Champion Hackney Royal Standard Stallion



We have a number of first-class mares and fillies of this breed in foal to the above stallion. We also have for sale a number of other choice Clydesdale stallions, Standard-bred and Thoroughbreds.

GRAHAM BROS., Claremont, Ontario. 25 miles east of Toronto, on C. P. R. 4-12-om

OUR SPECIAL FOR SINGLE BUGGY DRIVING \$15 Livery Harness

Equals any \$20.00 custom-made harness sold in Canada. Strong enough to haul a wagon load of bricks. Handsome enough to draw the finest carriage.

JUST AS VALUABLE TO THE FARMER AS TO THE LIVERYMAN. Our regular line of strictly handmade harness at \$9, \$12, \$15, \$18 are unequalled.

JAS. SMITH, SON & Co., BRANTFORD, ONT. WHOLESALE MANUFACTURERS. 24-y-om

ISALEIGH GRANGE STOCK FARM, DANVILLE, QUEBEC



A CHOICE assortment of the following pure-bred stock always on hand: Ayshire and Guernsey Cattle of the choicest breeding and most fashionable type and color...

J. N. GREENSHIELDS, Proprietor. T. D. MCALLUM, Manager, Danville, Que. 8-y-om

The Longest Row

is shortly hoed with the "PLANET JR." No. 15 Single-Wheel Hoe. Has Cultivator, Rake and Plow attachments. Quickly converted into a hill or drill seeder...

S. L. ALLEN & CO., 1107 Market St., Philadelphia.

BRAMPTON JERSEY HERD A. J. C. C.

FOR SALE—19 registered and high-grade heifers, sired by or bred to Sir Ollie; also heifer calves; 4 registered young bulls...

LEE FARM REGISTERED JERSEYS

Bulls fit for service, \$50 each; Heifers in calf, 50; Young cows in calf, 75; Heifer calves, 30.

Exile of St. Lambert 13657

Founder of the great EXILE family of large milk and butter producers. Fifty-four tested daughters—more than any other bull, living or dead.

P. J. COGSWELL, ROCHESTER, N. Y.

2 PURE-BRED JERSEY BULLS

(St. Lambert strain) fit for service, one rising two years old, the other one about a year old, from a great show cow, which has made 16 lbs. of butter per week...

W. WILLIS, NEWMARKET, ONT.

Norway Spruce.

All sizes; twice transplanted; good roots; stout, bushy tops; fine healthy color.

THE LESLIE NURSERIES, TORONTO, ONT.

MASSENA'S SON

and two choice young Jersey Bulls for sale; also eggs from choice pens of Blk. Minorcas (Rev. W. E. Scott's breeding)...

GLEN ROUGE JERSEYS

WILLIAM ROLPH, Markham, Ont., offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals.

W. F. BACON, - Orillia, Ontario

CHOICE REGISTERED JERSEYS

Young bulls and heifers of the best blood for sale. Write me for prices and particulars.

HOLSTEIN BULLS FOR SALE

Two 2 year-olds and a yearling; also some young females; all bred in the purple, as their pedigrees will show.

FOR SALE - A PURE-BRED HOLSTEIN

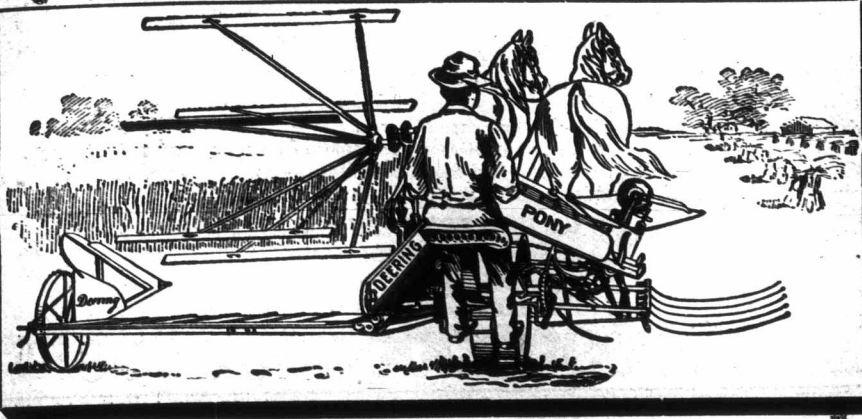
bull, 13 months old. A superior animal. P. O. Box 165. om STRATFORD.

The Deering Pony Binder

king of light-draft binders and the only really two-horse binder made. It is the only machine with successful

ROLLER AND BALL BEARINGS.

These bearings not only save one horse power in draft but they prevent wear and save repair expenses. The Pony shaves the ground clean and saves what other binders waste. Elevator extension makes it open-end for long grain and closed-end for short grain. Jointed Platform does away with the binder-truck nuisance.



Deering Pony Binder, with Roller and Ball Bearings.

Experience of a Prominent Merchant.

London, Ont., September 17, 1896.
"I never had a machine that gave so much pleasure to operate as the Deering Pony Binder, as it went through the whole season without a hitch. The roller and ball bearings made it wonderfully light of draft, two horses being able to work it with ease in heavy wheat. The bundle carrier is equal to one man in facilitating the stooking of the sheaves."
J. S. FALLOWS.

DEERING IDEAL MOWER, a ball bearing beauty; has no equal. DEERING HAY RAKES get all the hay. DEERING CORN HARVESTERS, DEERING BINDER TWINE AND REPAIR PARTS FOR ALL DEERING MACHINES for sale all through the Dominion by resident local agents. A few more agents wanted for unassigned territory. Send for catalogue, free.

DEERING HARVESTER Co.,

CHICAGO, U. S. A. LONDON, ONT.

GOSSIP.

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

Mr. James Fell, formerly of Brantford, Ont., owner of the "Belmont" Jersey herd, has gone to superintend a Jersey herd and farm in Ohio.

The sale of young Shorthorn and Ayrshire bulls made by Messrs. Thompson & Ballantyne, at St. Mary's, Ontario, on April 7th, was not largely attended. The animals were not in high condition. The prices ranged from \$10 to \$35.

Jacob B. Snider, poultry breeder, German Mills, Ont., makes a change of advertisement in this issue, which readers will do well to note. Mr. Snider writes us that his advertisement in the FARMER'S ADVOCATE pays him well, as he is shipping eggs in every direction, one lot recently going to St. Joseph's Island.

The assignee's sale of Jersey and grade Jersey cattle at Tavistock, Ont., on April 7th, brought out a large attendance of farmers in the locality, and fair prices were obtained, considering the quality and condition of the cows, most of which were dry or had calved in the fall and would not be due to calve again till near the end of the year. The prices ranged from \$45 to \$61 for cows, and in like proportion for younger stock. The indications were that good young cows coming in fresh this spring would have brought very satisfactory prices.

The much-vaunted, so-called forage plant, Sacaline, is being shown up in its true colors by Prof. Chas. D. Wood, Director of Maine Agricultural Experimental Station, in a special bulletin recently issued, in which he says: "All who have had experience with the plant advise caution in its introduction, because of its very strong spreading and persistent root system." The FARMER'S ADVOCATE took occasion as long ago as its issue of April 15th, 1893, to condemn Sacaline for forage purposes, based upon actual trial. Prof. Wood states that not until 1893, when French cattle, in order to avoid starvation, were noticed to feed upon its leaves and tender branches, was any claim made for Sacaline as food for stock.

Ira Cornwall, Secretary-Treasurer of the St. John (New Brunswick) Board of Trade, says in a letter to the FARMER'S ADVOCATE:—"It will be very gratifying to Canadians generally to note the remarkable developments of the winter shipments from this port, and the evidence that a Canadian harbor can compete with the United States ports. While there has been a development of about fifty per cent. of the traffic during the present season over that of the preceding winter, the local manager of the Canadian Pacific Railway states that the business has only been limited by the amount of ocean tonnage offering; also if the steamers had been available the business would have been double that of the present season. While the undertaking was in an experimental stage, our citizens willingly undertook the work, and, at an expense of nearly half a million dollars (without any aid from the Dominion Government as to harbor improvements, including elevator, etc.), put their harbor in a position to cater for this traffic. The business has passed through this stage, and they are still continuing to use their utmost efforts to meet the increased developments, but find that the Federal government of the United States is now an element in the competition. That government is spending millions of dollars on their Atlantic seaports in order to compete for this traffic. As an illustration, over \$300,000 is to be spent on the harbor of Portland alone. Under the circumstances they feel that as it has become a matter of competition in which the government of the United States is assisting their ports, that similar assistance should be granted by the general government of Canada to the Canadian winter port which has proved itself worthy of the name. As the traffic during the past has been largely from all parts of Canada, as well as the Western States, they feel that it is a matter of national importance."

A. C. HALLMAN'S HOLSTEINS AND TAMWORTHS.

Our representative called at the farm of Mr. A. C. Hallman, New Dundee, Ont., breeder of Holstein cattle and Tamworth swine. The matrons of the herd include many good cows, such as the imported Guillemette, with her record of 80 lbs. per day; a heifer three years old, which won second in Toronto in 1895, and first at London, also diploma for the best female of any age; Ideal's Netherland, tested nearly five per cent. fat. Polyantus Netherland (grandam of Penanthus) had a record of 13 1/2 lbs. as a two-year-old; dam Polyantus 2nd, 60 lbs., by Prairie Aggie Prince, a bull in his show form was scarcely ever equalled, sired by Royal Canadian Netherland, a son of Netherland's Prince; and a number of others of equal merit. Mr. Hallman has a few animals sold yet on hand for early delivery to breeders in different sections. The stock bull is Flora's Sir Jacob, three years, now for sale, out of Flora Jane (imp.), a cow with a butter record of 21 lbs. per week and a milk record of 75 lbs. per day and 4,266 lbs. in sixty days. He is very active and carries the strongest of Holstein blood. His stock is coming strong, and promises well to make producers. Another promising bull is Netherland, two years, sired by Netherland Caesar, a winner of first as a calf and second as a yearling; dam Polyantus 3rd, a full sister to Netherland Consul, a silver medal bull in Toronto in 1893. Among other young bulls are Lady Acma's Prince, two-year-old, a son of the Aristocrat cow, Acma 2nd; sired by Netherland Aggie Edem. Promoter, one year, a son of Ideal's Netherland, and three bull calves. In summing up the herd they are a creditable lot of individuals, apart from their producing qualities and strong breeding.

At the head of the Tamworths is Wolverton Chief (bred by A. Dunn, of Ingersoll), a hog of immense length and depth of body and strength of bone. He is very active on his feet. Beside him is a good sort of young boar, bred by Mr. Nichol, Hubrey, Ont. The females of the herd comprise five aged brood sows, five young brood sows, and a number of younger ones coming on. Taking them all in all they are a choice lot of animals, having been selected and bred with great personal care, from ancestors having proven themselves worthy breeders.

ADVERTISE IN ADVOCATE

"Gem Holstein Herd."

STOCK FOR SALE!

We only keep and breed registered Holstein-Friesians. We have now some choice young bulls and heifers, also some older animals, all of the very best dairy quality, that we will sell, one or more at a time, on reasonable terms. Correspondence solicited.

HILLIS BROTHERS,
BEDFORD PARK P.O., ONT.
Shipping Station, Toronto. 7-7-om

MAPLE Holstein-Friesians. For rich breed-HILL
We have now some choice young bulls and heifers, also some older animals, all of the very best dairy quality, that we will sell, one or more at a time, on reasonable terms. Correspondence solicited.

HOLSTEINS!

We now offer young stock that have won prizes, and calves from our show herd, from one month to one year old, whose dams have large records—any age or sex—FOR SALE, at very low prices to quick buyers. Also some Poland-China Pigs, 1 and 6 months old; same quality (the best).

A. & G. RICE,
Brookbank Stock Farms, CURRIE'S CROSS-ING, Oxford Co., Ont. 12-7-om

HOLSTEINS

None but the best are kept at **BROCKHOLME FARM, ANCASTER, ONT.** Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry. Yorkshires all recorded.

12-7-om **R. S. STEVENSON, Prop.**

Ingleside Herefords.

UP-TO-DATE HERD OF CANADA!

Bull Calves OF THE RIGHT SORT For Sale.

Address—
FRED NORTON
(HERDSMAN).

17-7-om **Compton, Que.**

PRIZE-WINNING STOCK FOR SALE

AYRSHIRE BULLS fit for service; one out of Ada No. 882, winner of first and two special prizes at Provincial Dairy test, Guelph, Ont., 1895. Imp. POLAND-CHINA pigs of all ages. **W. M. & J. C. SMITH,** Fairfield Plains, Ont. 19-1-7-om

AYRSHIRE BULLS....

...FROM FIRST PRIZE HERD.

One 12 months old (from imp. cow and imp. bull) whose grandam was dam of sire of sweepstakes cow at Toronto, 1896; one 11 months old (by imp. bull, dam by imp. bull and out of imp. cow) having a record of 23 lbs. 3 oz. butter in 7 days. Also two Sept. calves from imp. in-dam cows; two Oct. calves, one from imp. cow and imp. bull; one Feb. and one March calf from imp. cows and imp. bull, and one March calf from imp. in-dam cow and imp. bull. All light colored and from heavy milking dams.

THOS. BALLANTYNE & SON, Neidpath Stock Farm, Stratford, Ont. Farm adjoins city, main line G. T. R. 1-1-7-om

AYRSHIRE CATTLE

The bull **TOM BROWN** and the heifer **White Floss**, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester Sheep and Berkshire Swine. 5-1-7-om

DAVID EMMING, Glenhurst Farm, WILLIAMSTOWN, ONT.

Choice Ayrshires of deepest milking string. Largest and oldest herd in Ontario. We have choice young stock of both sexes sired by Leonard Meadowsdale, sweepstakes bull at Ottawa. Also choice Shropshires, and a fine lot of Berkshire pigs for sale. Visitors met at Queen's Hotel. Give us a call.

J. YULL & SONS, CARLETON PLACE, ONT.

AYRSHIRE CALVES (either sex) from strains for sale, \$11.00 each with pedigree if taken away soon. **J. A. James,** NILESTOWN, ONT. om

Strongest Bicycles IN THE WORLD.

1897 Columbia Bicycles are made of 5 per cent. Nickel Steel Tubing. We control the entire production of this tubing and use it exclusively in

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STANDARD OF THE WORLD.

HARTFORDS \$85 and \$65. SECOND ONLY TO COLUMBIAS.

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AGENTS: **Wm. Gurd & Co.,** London, Ont.

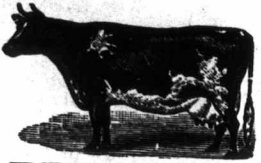
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LONDON Ptg. & Litho. Co. (Limited),
Lithographers and Printers, London, Ont.

OAK POINT STOCK FARM
Ayrshires FOR SALE.

I have now for sale a choice lot of young bulls and heifers of fine quality, and bred from best milking strains. Particulars on application.



J. B. CARRUTHERS,
Kingston, Ont. 17-y-o

THE GLEN STOCK FARM

Our stock comprises Clydesdales, Ayrshires, and Shropshires. High class Ayrshires a specialty. We are making a special offering of ten very promising young bulls, and a number of very choice cows and heifers of the heaviest and richest milking strains, any of which will be sold at very moderate prices. We also have Rough-coated Scotch Collies for sale, eligible for registry.

W.M. WYLIE, 288 Bloor St., MONTREAL, or Howick, P.Q.

Breeder of high class Ayrshires.

Young stock always for sale; bred from the choicest strains procurable. Breeding stock selected from the most fashionable strains and prize-winning stock of the day. Farm located at Howick, Que. 5-1-y-o

FAIRVIEW STOCK FARM.

Ayrshire Cattle and Berkshire Pigs.

Traveller of Parkhill at the head of herd, while my herd is descended from cows purchased of Mr. David Honning; are modern in type, and are of the choicest milking strains. Write for prices of young bulls and heifers.

DAVID LEITCH, Grant's Corners, Ontario.
Stations—Cornwall, G.T.R.; Apple Hill, C.P.R.

AYRSHIRE CATTLE AND RED TAMWORTH SWINE

A grand lot of each on hand, including a nice lot of in-calf heifers, and **EIGHT BULLS** six to eighteen months old. Write us now for bargains. Prices away down.

CALDWELL BROS., Briery Bank Farm, Orohard, Ont
23-1-y-o

AYRSHIRE BULL CALVES

for sale cheap, if taken immediately. Three dropped in August, sired by Imp. Glencairn; dams by Silver King.

D. DRUMMOND,
BURNSIDE FARM, PETITE COTE, MONTREAL.

KAINS BROS. BYRON, ONTARIO, LONDON STATION, BREEDERS OF AYRSHIRE CATTLE.

Several fine young bulls, including the first prize yearling at London, second prize bull calf, and other good ones; also choice heifers of various ages. Prices right. 1-1-y-o

W.M. STEWART & SON, MENIE, ONT.

Breeders of high-class Ayrshire cattle; choice young stock of either sex and any age always on hand. Our herd contains a number of Columbian winners. 21-1-y-o

GUERNSEYS

This is the Dairy breed for ordinary farmers. Large, vigorous and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.

Address: **SYDNEY FISHER,**
Alva Farm, Knowlton, P.Q.
17-y-o

Hill Home Shropshires.

200 to select from. Foundation stock personally selected from the leading flocks of England. Flock especially noted for combined quality and size, and extra covering on face and legs. Now is the time to invest, as the prospects for sheep in the near future are encouraging. We now have for sale over one hundred choice breeding ewes from one year up, also ram and ewe lambs, at very moderate prices. Address—**D. G. HANMER & SONS,** Mt. Vernon, Ont. 14-1-y-o

ADVERTISE IN ADVOCATE

GOSSIP.

Is writing to advertisers, mention the "Farmer's Advocate."

MESSES. TAPE BROS.' DUROC-JERSEYS.
The Messrs. Tape Bros. (Ridgetown) stock of Duroc-Jerseys were looked over last week in our trip through Kent Co. This firm has a large herd of that breed on hand. Nimrod 106, a hog rising two years old, which was bred by E. H. Small, Norwood, Ill., and imported under one year, is now at the head of the herd, and has proven himself a producer worthy of the notice of breeders. His stock come strong and active. Mr. Tape says: "We are also using an imported hog, Royal Don, and a yearling not yet recorded." They have about a dozen brood sows—true specimens of their type, among which it would be hard to make a choice. And when our herd is complete this spring," says Mr. Tape, "we will have a very large stock, and all sows are giving us good sized litters, and are all milking well so far." Sales on this farm are reported as being very satisfactory and good prices realized, with an apparent increasing demand, as the stock are all in extraordinarily strong and healthy condition.

MR. J. C. SNELL'S JERSEY SALE.
Mr. J. C. Snell's sale of Jersey cattle on the 25th April, notwithstanding a wet day and a comparatively small attendance, was quite successful. A few buyers were present who evidently meant business, and all the animals catalogued were sold at fair prices, the best ten head averaging within a trifle of \$100 each, and the whole herd, including bulls and calves, making an average of \$55. The highest price was made for the 13 months' heifer, Jean of Arkland, which went to Mr. D. Duncan, of Don, at \$155.00. Capt. Ralph, of Markham, bought five head, and Mr. Walter Massey, of the Massey-Harris Co., took four. Mr. Gibson, of Delaware, bought two heifers for his own account. J. H. Smith & Son, Highfield, captured the fine two-year-old heifer, Carlo's Alta, full sister to "Jean," at \$115. Mr. A. Terrill got May Verbena 2nd for \$115. Mr. Massey paid \$105 for Lemon Squeezer, and Dr. Robinson, New York, secured Arabella Pogue by telegraph at a bid of \$85. The death of the first cow in the catalogue from milk fever a few days before the sale had a depressing effect on the average price, and would no doubt have brought a high price for Mr. Snell's cattle were in fine condition, and were very much admired.

W. C. SHEARER'S JERSEYS AND TAMWORTHS.

The beautiful home of W. C. Shearer, Bright, Ont., was visited, and his dairy of well-chosen Jersey cows were carefully looked over, also his herd of Tamworths and Barred Plymouth Rocks. At the head of his Jersey herd is the stock bull Canada's Hero, bred by Smith & Son, Grimsby, a five-year-old animal out of Nettie of Grimsby, 19 lbs. 5 ozs. a week, g. dam Nettie, 16 lbs. He was sired by Nell's John Bull, a son of Canada's John Bull, an animal having the quality of the sire. He is a grand type of his breed, and may be the separating one of the farm hands, as he does the separating and churning, and works perfectly on the treadmill, which has demonstrated itself to Mr. Shearer beyond all doubt as being the proper sort of exercise for a stock bull, making them stronger, consequently producing more vigorous stock, as well as keeping them quieter and less troublesome. Bessie, a grand individual from imported ancestors, was bred by Mr. Clark of Bramp' on. She has a milk record of 47 lbs. per day and butter record of 184 lbs. per week. At her butter-fat test she averaged over 5%. "She is now eleven years old, and since her four-year-old form, when I purchased her," says Mr. S., "she has had a very fine heifer and two bull calves." Her two-year-old daughter, Flossie, bids fair to equal her dam. Her yearling is a strong heifer, nicely sired, and is expected to calve next fall; also a heifer calf which has just been shipped to R. H. Bayard, Wallston, Queen's Co., N.B. Rosalin, a five-year-old, is also a very prominent feature in the dairy. She has, under test, at three years, produced 157 lbs. of butter per week. She has raised three bulls, one heifer, and a pair of twins, all the males of which have been sold to head herds in different sections. Without forcing she produced 34 lbs. per day, having 6% butter-fat, and late in the season 6.80%. Brindle (half-bred), a cow of strict dairy form, is capable of producing 10,000 lbs. milk per year. She tested 4% in flush and 5% later in the season. She is now eight months old, and is expected to calve next fall. She is now in the herd promise to equal their mother as milk and butter producers. A grand daughter, a beauty, and is sired by Canada's Hero. These other young females of seven-eighths breeding, sired by C. Hero, are all of good color, and promise to be producers of the high quality of the other cows now in the dairy. These Mr. Shearer now offers for sale as they are fit for immediate delivery.

Among the Tamworths we noted especially a brood sow of very superior quality, having strong substance of bone, great length and depth of body, and due to farrow April 10th. She has four daughters due to farrow early, all of the same type and quiet disposition. They are all good feeders and the kind that converts food into the sort of pork which packers require. Next we noted a choice sow and six of her pigs four months old which will average about 130 lbs. now and have not been rushed with feed. A Berkshire boar of unusual quality, descended from imported stock, is nine months old, having a true Berkshire head, well marked, and an animal whose quality would catch your eye on sight. A Berkshire sow about eighteen months, now suckling her second litter of ten, is also a choice animal of the true Berkshire type, and is qualified to hold her own. Mr. Shearer has also a few Yorkshires, and intends making a specialty of the hog business in connection with his dairy. Barred Plymouth Rocks, about 30 of which are constantly kept on hand, are of good size and quality. The cockerel, of Fielch strain, of New York State, was purchased from the pen of J. E. Meyer, Kasauw, Ark. Shearer has made a practice of obtaining new imported blood to head his pens every year, and keeps only the young of his.

IT IS FREE

Our booklet, "Paint Points," will help you in deciding what is the proper paint to use for your cupboards, baseboards, shelves, floors, buggies, wagons, boats, farm implements, barns, fences, chairs, houses—in fact, anything that can be painted.

There are great differences in paints. Some give a bright, glossy finish, others an oil finish that can be washed. The secret of painting is to know the right paint for your purpose, then use it. The old zinc bath tub is an eye sore. You can make it look like porcelain, and wear like porcelain if you use

THE SHERWIN-WILLIAMS BATH ENAMEL

"Paint Points" tells what you want to know about paint. Tells the good and the bad points about good and bad paint. Tells about the brushes to use, and how to take care of them.

THE SHERWIN-WILLIAMS PAINTS are made for every purpose, not one paint for all purposes. Send for the booklet to-day—it is free.

For booklet, address 20 St. Antoine Street, Montreal.

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ONTARIO BINDER TWINE CO.
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IN CAR LOTS OUR SPECIALTY. OF EVERY DESCRIPTION.

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If interested write for prices.

MAXWELL WEEDER!

A new implement, thoroughly tested and endorsed by prominent agriculturists. The most labor-saving tool on a farm. Send for catalogue.

David Maxwell & Sons, St. Mary's, Ontario.

Feels His Oats

This will not be the case with an animal whose blood is out of order. When a horse is all run down he needs a tonic the same as a man. Often he cannot have complete rest. Give him

Dick's Blood Purifier

and note how quickly he will pick up. His whole system will be invigorated. His digestion will be strengthened so that all the nourishment will be drawn from the food an less of it will be required. **Dick's Blood Purifier** drives out Bots, Worms and all parasites.

For sale by druggists, at general stores or sent post paid on receipt of 50 cts.

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