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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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Vol. XXXIII.

LONDON, ONT., AND WINNIPEG, MAN., JANUARY 1, 1898.

No. 445.

EDITORIAL.

New Year Resolves.

We apprehend that few farmers in reviewing their work for the past year will feel like congratulating themselves on having farmed as well as they knew how. This is probably true of most men in every calling in life, that they have not improved their opportunities to the full; but we are inclined to believe it applies with peculiar fitness to a larger proportion of those engaged in agricultural pursuits than of those engaged in any other line of business. Speaking generally, intelligent farmers have a pretty correct idea of the treatment that is necessary to the best results in the cultivation of a crop or the feeding and management of their stock; but the trouble is that so many, from indifference or neglect, or from procrastination, fail to put into practice the knowledge they have, and consequently come short of the realization of the full returns which await the husbandman whose whole duty has been done. We readily grant that in dealing with the soil and with animal life the farmer has many things to contend with which are beyond his control, that frequently conditions of weather or other contingencies prevail which offset, and, it may be, nullify, his best efforts well meant and honestly made; but given the most favorable conditions, and the fact remains that often we fail to do as well as we know how, and though we derive fairly good returns, we have to admit they might have been much better had we taken advantage of all the circumstances and made the most of our opportunities.

The commencement of a new year is an opportune time for the making of good resolutions in regard to business methods as well as to the highest aims and objects of life, and it will well repay every farmer who puts into faithful practice the good resolve to do thoroughly everything he undertakes in the way of preparation for and cultivation of his crops and the feeding, care, and management of his stock. The temptation to slight the work, the outgrowth of a spirit of indifference or in order to gain time and to be ahead of his neighbors in finishing the seeding or harvest, if weakly yielded to, may make all the difference to the farmer between a partial failure and a gratifying success in the harvest yield. It is all right to push the work and have the seeding done as early as the condition of the land will properly admit, but let it not be done at the expense of thoroughness, and let the cultivation of hoed crops be done, if possible, at the time when it will do the most good to the growing plants. In the feeding of animals intended for the meat market regularity and punctuality in serving their meals is of so much importance that no ordinary excuse should be allowed to interfere to disappoint the expectations of the animals, as the best results can only be obtained by keeping the engagement with them every time. The man who has cattle to feed that are depending on him cannot afford to loiter in the town talking politics when the feeding hour is near; better leave that to the politicians. The same remarks apply to the care of dairy cows; regularity as to time of feeding and milking is of the first importance, and any deviation from the rule will tell with more or less ill effects on the returns. These are facts which are known to all observant farmers and feeders, and we mention them only as a reminder to any who may be drifting upon the sea of indifference, with the hope that they may be led to call a halt and make a good start at the beginning of the new year. "Be sure you're right, then go ahead," is a good motto, and we are especially solicitous that the farmer readers of the FARMER'S ADVOCATE may not only start right, but continue to the end in the best courses, so that this year's labors on the farms of the Dominion may be intelligently directed, faithfully performed, and

crowned with a rich reward. The outlook is encouraging, the prospect hopeful, and the probabilities cheerful to those resolved to do their best according to the light they have; and the FARMER'S ADVOCATE, standing on the watch-tower, cherishing a fellow feeling for the faithful workers on the farms, will keep a sharp outlook for dangers threatening their interests, which will be promptly communicated, and also to furnish all the information available which may be helpful to our readers, whom one and all we wish a Happy and Prosperous New Year.

The Need for Individual Effort.

Mr. Walter Lynch, of Westbourne, Man., in an article in our Christmas number on "The Decadence of the Cow," alluded to the days "when there were not so many political meetings nor conventions of all kinds as now, but when people had a little time to attend to their own business—the increase and improvement of their herds." Mr. Lynch is well known to many of our older Eastern readers, and has earned distinction as a successful pioneer farmer in the West and breeder of Short-horn cattle, so that his suggestion will command attention. The present is an age of conventions and associations, and it is not to be wondered at that the question is sometimes asked: Is the return (unless, perhaps, to the office-holding class) commensurate with the outlay? In the main the answer of the public would probably be in the affirmative, but Mr. Lynch's observation suggests one weakness of so much organized effort and of the modern political fashion of governments to expand their functions, viz., weakening individual enterprise and self-reliance, long the distinguishing characteristic of the Briton. Dependence and spoon-fed concerns will beget a form of degeneracy. Proper organization is of very great value and necessary in accomplishing many objects, such as conducting exhibitions, invoking the power of Government in dealing with powerful transportation companies, and in other ways that might be mentioned, and governments can undertake needed scientific investigations, etc., with which individuals might not be able to cope. Substantial advancement is being made in Canadian farming, and the FARMER'S ADVOCATE is free to give liberal praise where due to various governments, Federal and Provincial, for many encouragements afforded, and to much of whose work it has lent cordial co-operation; but though well-satisfied officials may quietly appropriate *honus bolus* to themselves the credit of progress, the observant, thoughtful man knows, after all, that he must, with increasing knowledge, work out his own agricultural salvation, and at the beginning of our year this fact should be fairly recognized. From small beginnings over 30 years ago this journal has labored incessantly, issue after issue, giving the results of every real advance in practice and science to promote better and more successful farming, frankly speaking out where criticism was deemed necessary. Going so numerously into every quarter of the Dominion, as well as into other countries, who can calculate the sum total of the scores of actual accruing advantages to the industry resulting on thousands and thousands of farms, and indirectly to the whole country, from its founder's individual effort and enterprise.

One Article Worth the Year's Subscription.

To the Editor FARMER'S ADVOCATE:
 SIR,—I am trying to get as many new subscribers as I can, because I think wherever your valuable ADVOCATE is read it will be a means of doing good to the farmers, and others too. Sometimes one of the articles in it is worth a year's subscription.
 R. J. MCNEIL.
 Chateaugay County, Quebec.

Fat Stock Shows.

The annual winter shows of fat stock have evidently become a permanent institution in Canada, as they have long been in Great Britain. To our mind, they are among the most useful as well as the most interesting of our agricultural exhibitions. Being entirely free from counter attractions, such as are associated with the autumn fairs, they are purely agricultural in their composition, and being in compact form, under one roof, are peculiarly adapted to serve an educational end. When properly systematized, the exhibition of the animals and the judging is under the eye of visitors, who, by the aid of carefully-prepared official catalogues, which the organization, being liberally supported, can well afford to issue, and displayed numbers on the animals corresponding with the catalogue, can follow the programme, the judging and the placing of the awards. This of itself is a liberal education to a young farmer in the most interesting features of his calling, and the meeting of stockmen for the exchange of ideas and comparison of notes is a privilege enjoyed to the full by those who avail themselves of it, and their number is increasing every year. At the inception of these winter shows it was thought best, on account of the limited number of high-class steers, wethers and barrows in the country fitted to make an extra good show, to allow breeding stock to compete. The effect has been the bringing together at the winter shows of a large proportion of the breeding stock which had gone the round of the fall fairs, making an exceedingly interesting exhibition, but one made up largely of animals intended for breeding purposes and not likely to be sold for the butcher's block, at least till their usefulness as breeding stock has ended. We can readily understand that a board of directors, largely composed of stock-breeders and exhibitors of breeding stock at the summer shows, are content to have a prize list which admits of the entry of the stock they have prepared for the earlier fairs and which can at little cost be kept up in show fix to come out again in December, and we are not disposed to object to this so long as a building can be secured sufficiently large to accommodate the show, but what we do contend for is that the original idea of a fat-stock show proper should prevail to this extent, that more and better prizes should be given for steers and spayed heifers, wethers and barrows in all the classes, so as to conform more nearly to the character of a fat-stock show, to encourage the production of ideal export animals and set the standard high as an example of what is needed and must be produced in order that Canada may hold her own in the competition for the best prices in the markets where we meet our strongest rivals in these lines. One of the probable effects of the return of better times and better prices for pure-bred male animals will be the castration of fewer of these, a course which will not tend to the improvement of stock, since many more inferior ones will be retained as sires. As long as much better prices can be realized for bulls for breeding purposes than for steers there will be a temptation to retain the calves entire, and the castration of average ones will seem to be a sacrifice. The same applies to sheep and pigs, and our contention is that to encourage the preparation and entry of good animals of the classes indicated at the fat-stock shows, the best prizes in the list should be offered for these. The prizes in the classes for grades and cross-breds should also be increased, which would have a tendency to encourage the more general use of pure-bred sires of a higher type, and the prizes in the classes for swine are too low in proportion to the importance of the industry they represent and the expense involved in their preparation and handling.

THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN
THE DOMINION.

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The Carriage of Pure-bred Stock.

The *Globe*, of Toronto, makes the following pertinent observations in reproducing the remarks of the FARMER'S ADVOCATE upon the above subject, the merits of which must appeal to the good judgment of all who have the well-being of Canadian agriculture at heart:

"Reduced freight rates are now given on pedigreed stock carried to Manitoba, the Northwest, and British Columbia. The concession is of great value, and there seems to be no reason why it should not be granted in the case of animals transported to any part of the Dominion. If the export of cattle is to increase, it will be necessary to look carefully to the quality of the animals, and the introduction of pure-bred cattle ought to be facilitated in every way. The railway companies ought to be farsighted enough to see that a little liberality in this matter is likely to be rewarded by a large increase in their earnings through the growth of the cattle trade."

The concessions desired should apply to other pure-bred registered stock as well as cattle when shipped for breeding purposes. We believe that with some reasonable encouragement in the matter of transportation rates, there should be a general advance throughout Canada in all branches of live stock husbandry, though the necessity for improvement has been more particularly emphasized of late in regard to beef cattle.

Sample Bacon Hogs from Canada.

A leading American experiment station, when it wanted model types of the various modern breeds of hogs for an important feeding test, came to Canada to get them. A couple of months ago a representative of Armour's big Chicago dressed meat establishment visited some of the swine-raising districts of Western Ontario to observe Canadian methods, and shortly after one of our well-known buyers (Mr. D. McIntyre) received an order for a double-deck carload of hogs suitable for what is called the "Wiltshire" brand, and our Chicago correspondent writes us that they have arrived there at a cost, duty and all, of \$6 per cwt., that they dressed well, and ought to make fine bacon. The American authorities and packers are determined to get at the true inwardness of Canada's fine bacon trade, and it is proposed to make a test of this lot with an equal number of the best U. S. bacon hogs, brand all as "American," but keep the two lots separate, and compare sales on the British market. There is no particular secret about the success of Canadian bacon. For a good many years our breeders and farmers have been breeding for the ideal bacon type, and this, coupled with an intelligent plan of feeding and management, has left the Western States hog-man, with his unclean, wholesale methods, and big, fat animals, far in the rear. The moral for the Canadian is that he cannot now afford in any particular to relax the efforts that have proved advantageous in the past.

Comments on Our Christmas Number.

THE POSTMASTER-GENERAL'S OPINION.

Ottawa, Dec. 23rd, 1897.

Gentlemen,—Allow me to congratulate you on the ever-increasing value of your journal as an aid to successful farming. Having been a constant reader of it for many years, I can gratefully express my appreciation of its worth. This year's Christmas Number, in addition to its intrinsic worth as an agricultural journal, is a beautiful work of art. With best wishes for your continued success, believe me,
Yours sincerely y,
WM. MULLOCK.

A WORD FROM PRINCIPAL GRANT.

Queen's University, Kingston, Dec. 27, 1897.

Dear Sir,—The Christmas Number of the FARMER'S ADVOCATE is remarkably good, and calculated to do good in more ways than one. Yours sincerely,
GEO. M. GRANT.

SHOULD HAVE A WIDE CIRCULATION.

Sir,—We have received a Christmas copy of FARMER'S ADVOCATE, which we have pleasure in looking over. We think you are to be congratulated on turning out such a splendid publication. The writer has often publicly and otherwise expressed the opinion that one of Canada's greatest needs is a higher class of farming; in other words, that brains are needed in farming to a greater extent than the average person seems to think. Papers like yours are calculated to bring before our agriculturists the latest ideas and developments in the various lines of interest to the rural community, and should have wide circulation. W. E. H. MASSEY,
President Massey-Harris Co. (Ltd.)

DOING GOOD WORK.

Ithaca, N. Y., Dec. 24th, 1897.

Dear Sir,—The Christmas Number of the FARMER'S ADVOCATE is received. I looked it over with considerable pleasure and profit. It presents an appearance of which you may well be proud. Your paper is doing a good work for the cause of agriculture. Very truly yours,
L. A. CLINTON, Asst. Agriculturist,
Cornell University Experiment Station.

THE FINEST.

Dear Sirs,—Your handsome and very interesting Christmas Number of the FARMER'S ADVOCATE has been received. We congratulate you on this splendid get-up. It is certainly the finest agricultural paper we have received this season. Wishing you every success and a happy Christmas and a prosperous New Year, Yours truly,
Toronto, Ont. J. A. SIMMERS.

BRILLIANT AND INSTRUCTIVE.

The Christmas Number of the FARMER'S ADVOCATE appears in brilliant holiday attire. The cover is an artistic piece of engraving, illustrative of a summer scene on a Canadian farm. A border of wheat sheaves and clusters of apples makes a refreshing picture at this time when the snow lies cold upon the ground. A prettily-colored full-page supplement is entitled "A Group of Famous Prize-winning Herefords," which will be extremely interesting to every stockman. The mineral resources of Canada are reviewed editorially, while contributions by such writers as Agricultural Commissioner Robertson, Mr. John Dearnness, Mr. J. R. Craig and Prof. Shuttleworth make the number a very instructive and enjoyable magazine for every person interested in Canada's greatest industry. The publishers of the ADVOCATE deserve the hearty support of an extensive constituency.—*Toronto Globe*.

AN ATTRACTIVE PUBLICATION.

The Christmas Number of the FARMER'S ADVOCATE is one of the most attractive publications of the season, being filled with useful and interesting reading matter on all points touching the successful farmer's operations. This paper very ably and artistically sets forth the strong features of this foremost of Canadian industries. A powerful plea is made for the extension of improved live-stock rearing. A fine colored plate is given of famous Herefords, with portraits of many other prize-winning animals and familiar farm scenes. Mr. Robert Elliott, the Plover Mills poet, indites "The Farmer's Jubilee," and artistically contrasts 1837 with 1897; while Bengough contributes a catchy poem. Professor Robertson, of Ottawa, extends a hopeful yet canny seasonal greeting, and Mr. John Dearnness, I. P. S., a well-known educationist, contributes a thoughtful paper on agricultural education, which should help to solve a difficult problem. Western cattle ranching is admirably reviewed as well as the mineral resources of Canada. The tendency of British agriculture is the subject of a careful article by a Scottish writer. Sugar-beet growing in Germany is described by Prof. A. E. Shuttleworth, and Mr. Palmer, of the British Columbia Department of Agriculture, writes graphically on the outlook for that Province in 1898. This Christmas Number, we notice, goes to all new subscribers for 1898, and the publishers of the FARMER'S ADVOCATE (now issued every two weeks) are to be complimented on their effort, and in getting out ordinarily a paper containing easily double the really high-class practical farm matter that can be got in any other way at so low a cost (\$1.00) per year.—*London Free Press*.

A DANDY.

Sir,—I received your Christmas Number last night. "It is a dandy."
Huron County, Ont. ROBERT S. OTT.

JAS. HENLOP, Wentworth County, Ont.: "I am well pleased with your paper. Could not well do without it. It is the best paper I know of for the farmer."

Healthful and Economical Wintering of Horses.

One of the topics discussed in this issue is that of winter feeding and care of farm horses of various classes. It needs no long-drawn-out argument to show the importance of studying the various features of this branch of stock-tending, as it interests every farmer more or less, and the difference in the result between wise and careless wintering may easily amount to a serious monetary consideration. It is not long since horse stock, except of some special class then in demand, was of so little value from a market standpoint, that with idle horses especially, and to some extent with brood mares and young stock, the cheapest means of wintering suggested itself as the most consistent with true economy. The market has changed, however, and at the commencement of A. D. 1898 horses are horses again. It is not necessary to review all the circumstances which have led to present brighter prospects for horse-breeders, as it is enough to say that fair horses in decent flesh are worth good prices. This subject of wintering, as taken up elsewhere in this issue by a number of horsemen in various parts of Canada, throws out in practical form many useful suggestions—the outgrowth of years of experience—which, if not applicable to all our horse-keeping readers, will at least suggest some beneficial modifications in their practice, or else provoke a discussion in which the views of many others may be made public and mutually helpful.

The wintering of idle horses has received, as it deserves, liberal attention. Every farmer has an interest in this branch, as Bellamy's universal and absolute electric power has not yet commenced to take effect in agricultural practice. Almost every horseman has his own peculiar views of what constitutes true economy in feeding any class of stock, but it must be considered reasonable to believe that the maintenance of vigor at the lowest possible cost should constitute an important consideration. What we should seek to get at, then, would be as nearly as possible a maintenance ration, along with sufficient exercise, pure air, and, when housed, comfortable quarters. A recollection of the appropriateness to health of summer pasture will suggest the value of a succulent ration. The freedom of the field has also proved its worth, and to make the best use of food and labor expended, juicy and palatable fodders, as well as liberal exercise, should be granted. To supply the necessary succulence, most farmers have either ensilage or roots, or both, which have given Mr. Rennie, Farm Superintendent at the Ontario Agricultural College, good satisfaction in feeding idle horses. So far as stable temperature is concerned, it should not go much above 50°, so that a tolerably heavy coat of hair would be induced to protect the body from the cold during the considerable time that they should be allowed the liberty of the yard. Where roots are fed and no corn ensilage, a little crushed or whole corn would serve a useful purpose in fortifying the animals against low temperatures, and for rough ration, well-preserved straw will answer admirably, and if cut and mixed with the succulent food and crushed grain it will be relished. Horses prefer, however, whole straw to pick over between meals, the remainder of which may be used as bedding.

It seems unnecessary to add to what our contributors have remarked regarding the care of brood mares. Liberal exercise is highly recommended, and generally considered as most absolutely necessary to a living and well-developed offspring, hence the general recommendation of loose boxes. It need hardly be mentioned that mares nourishing a foetus require rather more liberal feeding than other idle horses. It is also important that possibilities of her slipping on icy surfaces be guarded against, as many foals are lost by falls and strains of mares in various stages of pregnancy.

Young horse stock is quite fully dealt with. The general impression is that box stalls are necessary, and a nourishing ration should be given in order to advance growth and vigor. Skim milk is spoken of for foals, and we may say that our own experience verifies Mr. Scott's conclusions in that regard. We would do little more than emphasize the importance of liberal feeding. Clover hay, boiled grain, wheat, bran and roots should be liberally administered, as well as dry whole or crushed oats once a day. The care of the hoofs, referred to by one of the contributors, is worthy of every consideration. A crooked ankle, contracted heel, or perhaps a ringbone or sidebone, may easily result from a long, turned-up toe, which is very liable to occur when the colts are kept in box stalls and yards the floors of which are deeply covered with manure. The feet should be examined, and, if necessary, treated with the chisel, knife or rasp, being careful to keep the foot level and the frog resting on the floor.

Shoeing, blanketing, clipping, etc., of working horses and drivers are all gone into more or less, and many useful points are suggested. In our own experience we have found much less shoeing than used to be considered necessary to answer admirably. If colts are carefully driven without shoes for the first two years at ordinary farm work it seldom becomes necessary to have them shod in later years, except when road teaming has to be done, or an icy spell occurs in the winter when they have to be driven. We are convinced that

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much money that is now spent in horseshoeing could easily be saved without injury or discomfort to the horses. So far as clipping horses is concerned, we would give it no place at this season of the year. If done in November, so that a protecting growth of hair occurs before cold weather sets in, it is often a decided advantage, especially to a heavy-coated horse or one inclined to be lazy. Comfortable blanketing must be resorted to following clipping at any season. After December sets in we much prefer singeing the parts inclined to sweat, viz., flanks, belly, sides, breast, etc. This may be done fairly closely at any time without attendant evil. We have used the singer for several winters on our road horse, and like its effect.

In the series of letters referred to, an important point has not been touched upon, viz., that of fitting a thin horse for the market. Our readers would very much like to hear from those who have had success in this line, as the difference between the price of a thin and fleshy horse is a great deal more than the cost of putting him in the better condition, especially so when a wise system of fitting is pursued.

Public Officials, Wake Up!

Our Veterinary Department in this issue, which is sometimes thought to be technical in its nature, contains two letters that are likely to arouse attention, as they both deal with *live* subjects of very great interest and importance to farmers and stockmen generally, viz., the Administration of the Dominion Veterinary Department and Inspection for Tuberculosis in Cattle, both of which need careful attention. The writers do not beat about the bush in expressing their convictions. Dr. Sankey's letter indicates how the tuberculosis scare has been exploited in anything but the public interest. Mr. Hopkins is severe on our Chief Veterinary Inspector, Dr. McEachran, but it will not do to lay upon his shoulders the whole blame for the lamentable record of the Central Experimental Farm at Ottawa in the matter of tuberculosis. Regarding glanders among horses, one of the most serious maladies affecting animals, being practically incurable and also communicable to man, we have within a week's time received two reports of its existence in a town within thirty miles of Toronto, Ont., where some nine horses in one livery stable were found in various stages of the disease, and other cases were reported existing in the same locality—in all sixteen cases, more or less severe. Members of our staff are personally investigating the matter. We have reason to believe the disease has been there at least a month. There is an Ontario statute under which cases may be dealt with, but the Provincial authorities do not assume the direct responsibility of stamping it out, provision being made whereby cases may be dealt with by a justice of the peace upon information laid by any individual, the question of compensation being left with the municipality, which is not, to our mind, an effective method. The Province of Manitoba has a veterinary inspection staff of its own, and undertakes to deal with such matters vigorously without regard to the Dominion Inspector. Glanders, we notice, is one of the ailments covered by the Dominion Contagious Diseases Act, and the Dominion has a staff of inspectors in Ontario, so that there should be sufficient machinery for dealing with such cases promptly. There should be no dilly-dallying, particularly in cases like the above located in livery stables, from whence it is easily spread in all directions, endangering the farm horses of the district. It is our conviction that the question of jurisdiction should be definitely settled, so that there could be no shifting of responsibility or shirking duty. We understand that the above outbreak was reported to the authorities some ten days ago, but all that time has been allowed to pass without an investigation being ordered to determine the facts or action taken for stamping out the disease.

Farmers' Reading Circles.

To the Editor FARMER'S ADVOCATE:

SIR,—I believe this is a line of work open to be promoted by journals of the nature of the FARMER'S ADVOCATE, which, so far as I know, has not been taken up in Canada. It has been a source of regret to many that such associations as the Patrons of Industry, Grange, and farmers' clubs have to a large extent as educational factors become inactive, having been largely diverted into other channels. The Farmers' Institute, its meetings, reports, etc., are without doubt doing a great work, notwithstanding the fact that, taken as a general rule, the members of the Institute are already men of large practical experience and who have attained a good degree of success along the several lines which they are following, while those who most need the instruction afforded are not members and do not as a rule attend the meetings. Another of the features of Institute instruction is

that it is of necessity fragmentary and not continuous in its nature. The action of the Ontario Department of Education in deciding to introduce the study of agricultural science into the public schools is a move in the right direction, but it will, from obvious reasons, fail for many years in accomplishing a great deal, and in some respects fail utterly in attaining the results desired. Lack of practical knowledge on the part of the teacher and the scholar will be, no doubt, one of the chief obstacles. The prejudice against what is called "book farming," or scientific farming, is now fast passing away, no doubt owing much to the later publications on such subjects being much simpler, less burdened with scientific terms, and more practical than heretofore, bridging over the gulf which seemed to exist between theory and actual practice. An agricultural literature to accomplish most good must be expressed in simple language and in an entertaining manner that will induce those not accustomed to much thought or heavy reading to peruse it with satisfaction to themselves. That such literature is possible we have many evidences at the present day.

While it is necessary that our agricultural colleges should be maintained in the greatest efficiency, it is obvious that but a small proportion, comparatively, of our young farmers can or do avail themselves of the opportunity offered there of acquiring a scientific knowledge of their calling. And even of those who graduate a large percentage use the knowledge gained in a semi-professional capacity. They fill positions in similar institutions, the ranks of Institute workers, editors of agricultural journals, professors, veterinarians, dairy experts, etc., while those who do return to the farm, from the very fact that their parents have been in a position to give them such opportunities, enter farming on a scale above the average, and are able on that account to enter into operations beyond the reach of their neighbors who are not financially in such favorable circumstances. Even if he becomes an example to his neighbors in practice, those who imitate him without the same knowledge of the laws of cause and effect do so in a mechanical manner, unless he acts daily the role of an oracle and explains the theory on which his practice is based.

The local farmers' club, an institution useful in its day, though now scarcely ever heard of, had many things to commend it as a rural educator. But they had no higher source to draw their information from than that furnished in their own immediate vicinity, and very often the person proficient in wordy phrase, though mediocre in real ability and practice, held sway, while the quiet, industrious, and perhaps more successful neighbor would fail to give expression to his views. These, with other causes, limited its efficiency.

Even in the agricultural journal itself it is thought by some that too much attention is given to thoroughbred stock, or, more strictly speaking, show-bred stock, which might almost be called a distinct business from that of the general farmer.

[NOTE.—Practically all the improvements made in Canadian live stock can be traced (in conjunction with good care and feeding) to the studs, herds, and flocks of pure-bred animals. Improved stock and good farming go hand in hand, and live stock husbandry is the most important branch of farming. Were there no good pure-bred sires, whence would come prime export steers, improved dairy cows, high-grade mutton, or well-wooled sheep or bacon hogs that have made a name and money for us in Great Britain? At times show stock may be overfitted, but in the main it represents the highest types—the ideals—toward which all must strive. Canada must pay more attention to improved live stock husbandry. Having to deal with all branches of farming, together with general topics, such as "J. M." introduces, the ADVOCATE aims to give each in season according to its needs, as the present issue, for example, would indicate, its due share of attention.—EDITOR.]

I have no intention to belittle the good work of the several agencies mentioned, having for their object the instruction of a class who must ever be the dominant part of our population in point of numbers at least, but rather to suggest what would supplement them. I write from the standpoint of a young farmer, one of the majority who, having a good common school education, regrets that he had to a great extent at the threshold of the public school to lay aside the weapons which he was taught were to serve him in fighting the battle of life. Not being able to attend the Agricultural College, he is still anxious to know the why and the wherefore of agriculture and its successful pursuit, with, perhaps, not sufficient time and application, undirected, to seek the desired knowledge and training on his own account.

Could not something be done, not only to furnish material but also to give incentive to those who from any cause fail to grasp intelligently the available means at hand for further self-improvement along scientific agricultural lines? Such a scheme was first suggested to me by participating in "The Chautauqua Literary and Scientific Circle." This course of reading extends over four years. It is intended for those who have not had educational advantages, as well as college graduates, and is designed to pro-

mote close-connected, persistent thinking along a particular line, strengthening the memory, instructing the mind, creating a distaste for light reading, and giving a brighter outlook on life. A set of books is furnished for each year's reading, which a magazine directs, and which is supposed to be done daily or so much per week. The required readings are of a permanent and useful nature, as far as general knowledge is concerned. But it was a matter of regret to me that they were not so practical as might be. In looking over the list of the Rural Science Series in the FARMER'S ADVOCATE the suggestion came to me: Why could not some such series, with perhaps some additions, such as a book on farm accounts, etc., be made the basis of a course one, two, three or four years in length, with examinations at the end of each year or period? A course could cover four months or more of each year. The FARMER'S ADVOCATE might devote a page to directing of the readings, with the assistance of one of the Agricultural College professors or some other person conversant with the needs of the rank and file of the farmers, bringing out the most salient points, allotting weekly readings, and writing articles on current questions, examining papers, etc. The books required would be of such a nature that they could be used for reference in future, and be made a nucleus of a farm agricultural library. Few have better opportunities for instructive reading than the farmer in the quiet winter evenings. A circle might be composed of two or a dozen. They might form the itinerant system of meeting at their own homes, thus combining the social with the intellectual and practical. The ladies have not yet been mentioned. But to speak of a social feature suggests the need—yea, more, the necessity—of their presence in a circle of this nature. They could read domestic economy, horticulture, in conjunction with the other members.

The actual cost of a Rural Science Circle would be small compared with the C. L. S. C., and its usefulness might be made great in developing a higher perception of the farmer's calling. J. M. Perth Co., Ont.

[NOTE.—"J. M.'s" letter deserves consideration. Carried out in some simple way, under wise auspices, farmers' reading circles would promote a deeper study of the science of agriculture, and lift the life of many a neighborhood to a higher plane. Besides the Chautauqua Circle referred to, the National Home Reading Union in England, under the patronage of the Princess Louise, has a large membership; the *Cosmopolitan* magazine has what is called a correspondence university upon that plan; the Michigan Agricultural College runs quite an extended farm home reading course, and such young people's societies as the Epworth League have reading circles. In Canada the latter issue four books for each winter's reading, the work being in many cases left largely with the local circle, examinations at the close not being imperative. The books are read simultaneously, members meet to discuss them, ask questions or read papers, so as to fix in the mind what was read. Its success depends mainly upon the energy of some one person or more in the neighborhood. The more extended plan means correspondence, the issue of circulars, examination papers, to be covered by a membership fee, besides the cost of books. We have found considerable demand for such works as Roberts' "Fertility of the Land," King's "The Soil," and others, which we have placed within reach of the farmers of Canada at a very low rate or as premiums for obtaining new subscribers to the ADVOCATE. The present is an opportune time for the consideration and expression of opinion on the Reading Circle question so ably presented by "J. M."—EDITOR.]

President Mills on the Merits of the "Farmer's Advocate."

To the Editor FARMER'S ADVOCATE:

DEAR SIR,—Allow me in a word to say that I am very much pleased with the Christmas Number of the FARMER'S ADVOCATE. In quantity, quality, and variety it is excellent—a credit to Canadian journalism. The article on Agricultural Education, by John Dearness, alone is worth a year's subscription to any one who is interested in awakening and elevating the rising generation of farmers in this country. I wish to thank Mr. Dearness for so able a contribution to this important subject. Let our public school teachers be equipped and trained as suggested by Mr. Dearness, and the problem of Canadian agriculture will be solved. Our young farmers will be interested in their work; they will be more prosperous than they are at present, and their homes will become brighter and happier as the years go by.

When I look over the great variety of well-written practical articles in your paper, study the illustrations, and consider that the price is only \$1 a year, I feel that every farmer in the Dominion should have a copy. I wish you a happy New Year, and hope that your subscription list may increase from day to day. Very truly yours,

JAS. MILLS, Agr. College.

Guelph, Dec. 29, 1897.

STOCK.

Wintering Horses of Various Ages.

Knowing that Mr. Wm. Rennie's system of wintering working horses gives good satisfaction on the Guelph College farm, and is withal economical, costing some 7 cents per day, we have submitted it to a number of successful horse-breeders for their judgment upon it, and have also asked their method of caring for all classes of horses found on the average farm. We are pleased to give as a result of our inquiry a number of helpful letters, which we hope is only the commencement of a discussion on this very important topic.

A Good System Clearly Outlined.

To the Editor FARMER'S ADVOCATE:

SIR,—I believe Mr. Rennie's system of feeding horses to be a very good one for any person who has the fooders necessary to make up the daily winter ration mentioned, viz.: Cut hay, 12 pounds; ensilage, 17 pounds, and pulped turnips, 17 pounds, fed in three daily feeds, with three pounds of equal parts chopped grain and bran fed twice a day. We are wintering eleven horses with the following feeds: wheat, oats, and pea straw and ensilage, and propose mixing cut straw and ensilage in equal parts, and feeding twice daily, with three or four pounds ground grain and bran, giving one daily feed of uncut hay. I have never found much profit in cutting hay, but by cutting straw and mixing with ensilage they eat it much better. I feed as much as they eat up cleanly. The above ration is for work horses, mares and colts down to two years old, but for yearlings I give less straw, and prefer feeding foals with clover hay, oats and bran, and if we have skimmed milk to spare we give it to them, and find that they grow finely fed thus. We have a good well at the door of the feeding passage, and water the horses from a pail, giving them all they want before feeding. The brood mares and colts are turned out almost every day for exercise. Some of the horses we keep in a concrete basement, and others in a frame barn; some of them in boxes and some tied. We have one driver bred and fed specially for that purpose. We clip him about the beginning of November, and use a warm blanket all winter, and he will stand any reasonable amount of driving, scarcely ever sweats, and keeps in good condition. He is fed principally on hay, oats and bran. A driver should, in my opinion, be shod all the time, but work horses only when it is slippery, or when they are on the roads much in summer, but for working on the farm they are as well without shoes. It is well to have a chisel and mallet in the barn, and keep all the mares' and colts' feet trimmed in proper shape.

Middlesex County, Ont. A. B. SCOTT.

Wintering Horse Stock in P. E. Island.

To the Editor FARMER'S ADVOCATE:

SIR,—I have nothing to say against Mr. Rennie's method of wintering horses. I have the very best respect for Mr. Rennie's opinion on any matter of farm economy, and I should say that idle horses, or even horses doing moderate work, should do very well indeed on Mr. Rennie's ration. We have four horses doing little or no work this winter. We have also a foal. We are wintering our horses on early cut, bright oat straw and turnips, and two quarts of oats. The oats are fed after watering, once a day. The foal gets some hay once a day besides the straw. Watered twice a day, and at once fed two quarts of bran and oats, morning and evening and turnips at night. Our horse stable is a very inferior building, and hence we cannot follow the best plan. They are tied up, but feel sure idle horses, and certainly colts and foals, would do better in box stalls if sufficient bedding could be spared. Have tried box stalls, but found they required too much straw for bedding. When our horses work they simply get an extra feed of oats. If they do a hard day's work they get three feeds of oats—about a half bushel. I own a driving horse that I value at \$300. I would not get more than one-fifth that amount for her at present prices, as she is "cross" and undersized. This beast is fed like the others, only that if she is to be hitched up for a drive she gets a feed of oats, about a gallon, about an hour before being hitched. If the mare has had a hard drive, or even a 15 to 20 mile drive, and has been much exposed, I like to give her a warm mess of boiled barley and potatoes when coming to the stable. I do not believe in grinding oats. Barley, I think, should be ground. Wheat, if fed to the amount of a quart and is hard and dry and mixed with other grain, I would not grind either.

We do not clip, but keep the horses blanketed; but if our stable were warmer I do not think we would blanket at all, unless it were a driving horse that we wished to look slick and show high spirits. I do not shoe any of our horses except when the roads get slippery in winter and it becomes absolutely necessary, as also when wanted to put on a tread power. We never shoe our horses in summer or autumn at all, nor in winter only when it becomes slippery. The driver has not been shod since last April, and she has done quite a lot of driving, is perfectly sound in foot and limb, and I cannot see that she has ever been injured by going without shoes. If the roads get slippery so that she, as the others, must be shod, then on go the shoes.

King's Co., P. E. I.

J. A. MACDONALD.

Wintering Horses in Nova Scotia.

To the Editor FARMER'S ADVOCATE:

SIR,—Have had no experience in feeding ensilage to horses, but would consider 17 lbs. of either ensilage or turnips too much to keep a horse in good health for any considerable length of time, though it would no doubt be a cheap ration. I use hay, oats, bran and turnips. We feed idle horses rather sparingly of hay, and about six pounds of chopped oats and bran mixed in equal parts and fed in two equal feeds. We feed brood mares about the same as above, except when working, when we feed whole oats with the bran and increase the amount of grain. Colts get all the hay they will eat up clean, unless they get to eat more than is good for them, and three or four pounds of crushed oats and bran with occasionally a few turnips. When foals are weaned I give them about two quarts of bran, into which I pour a quart of milk and a little molasses twice a day, gradually changing to bran and crushed oats and a little pulped turnips if I can get them to eat it. We water idle horses and colts twice a day, working horses three times a day, from a running brook in mild weather and from a spring in cold weather. We generally keep the brood mares working sufficiently for exercise. Colts and horses that are not worked are allowed to run in the yards on fine days and kept in box stalls when possible. We keep the horses in a frame stable and try to keep the temperature always above the freezing point, but not very warm. Working horses get what hay they will eat up clean and from eight to twelve quarts of oats in three equal feeds and about one quart of bran in each feed, increasing the amount of oats if the work is hard and steady. In winter we always blanket but never clip our working horses. The working horses generally have to be shod quite frequently to keep them sharp. I think shoes should never stay on a horse longer than six weeks without being removed, and in most cases once a month is better. We let the work horses go barefooted during April and May. I consider a few turnips excellent feed for any kind of horse, especially during fall and early winter.

Cumberland Co., N. S.

C. H. BLACK.

Mr. Rennie's System Approved, with Modification.

To the Editor FARMER'S ADVOCATE:

SIR,—For four years I have used with success a ration similar to the one mentioned. My experience teaches me that 17 lbs. ensilage and 17 lbs. turnips is too much soft feed for horses even when idle, and will at occasional times cause slight scouring. I use ensilage, oat straw, threshed clover (not fine chaff), turnips, and grains. For a 1,200 lb. horse I feed 3 lbs. cut threshed clover, 3 lbs. cut oat straw, and 6 lbs. ensilage, all mixed, and fed morning and night, with 2 lbs. equal parts ground oats and bran added; 12 lbs. turnips at noon. To colts I give about half the quantity of coarse fodders, with 3 lbs. ground oats and bran morning and night, with about 3 or 4 lbs. good clover hay fed whole with the turnips at noon. Water from a trough in shed at the stable door morning and night before feeding. Horses are all tied in stalls and colts generally in box stalls, being tied occasionally to accustom them to the halter and handling. All are allowed to exercise themselves in the barnyard for about an hour daily. I house in stone stabling above ground, being both warm and dry, at a temperature of about 60 degrees.

I have very little teaming and driving, hence feed similarly as above mentioned for idle horses. If going on a journey I feed more dry fodder and less succulent for a day before, and while driving. Keep one team shod in front always, and behind only when required to travel on slippery or rough, hard roads. I clip all before seeding; but as the stable is warm, we do not blanket. If the hair is long and horses sweat in the stable during winter we also clip and keep blanketed.

Ontario Co., Ont.

G. A. BRODIE.

Prefer Loose Boxes for Brood Mares and Foals.

To the Editor FARMER'S ADVOCATE:

SIR,—I think Mr. Rennie's system a good one. Do not think it necessary to cut hay for idle horses, have never fed ensilage to horses. I would add a little salt to oats and bran when mixed. To idle horses we feed hay 12 lbs. (not cut) a day; straw, 2 daily feeds; oat, barley, and wheat straw, 3 ordinary turnips not cut, 2 daily feeds of oats, 4 lbs.; bran, 2 lbs. a day, mixed with wheat chaff, a little salt added. Brood mares get a little more. Colts, more or less, according to size and condition. Foals get clover hay twice daily; pulped turnips, 20 lbs.; chopped oats, 5 lbs.; bran, 5 lbs.; mixed; fed 3 times daily; a little salt added. Water before feeding 3 times a day. We turn out to a spring close to yard, which acts as exercise as well. We prefer loose boxes for brood mares and foals, and like a good, warm, frame stable. Working horses get hay, 15 lbs.; oats, 13 lbs.; bran, 3 lbs.; fed 3 times a day. More or less, according to work. Prefer singeing and blanketing to clipping. It is well to keep working and driving horses always shod in front and mostly behind, providing they are not too handy with their heels in the stable.

York Co., Ont.

J. M. GARDINER.

By renewing your subscription promptly, you will confer a favor on the Farmer's Advocate.

Ensilage and Turnips Not Approved Of.

To the Editor FARMER'S ADVOCATE:

I consider Mr. Rennie's a good ration, with the exception of the ensilage and turnips. I think good, clean oat straw, cut and mixed with hay, better than ensilage, and carrots are much better for horses than turnips. They should also receive about three pounds of chopped oats and corn, with some bran, twice daily. I have a large quantity of good clover and timothy hay, and some clean oat straw, upon which I propose feeding my horses this winter. I intend to feed my idle horses about 15 pounds of cut hay and 10 pounds of cut straw, mixed together, and fed daily. I feed my brood mares same ration until a month or two before foaling time, when they receive all hay. My yearlings and two-year-olds are fed the same as my idle horses, only probably in less quantity, according to size and age of colt. I think that foals should receive clear hay all winter. I always make it a point to water my horses twice daily in winter while they are idle. I water them about nine o'clock in the forenoon, and at five in the afternoon. They are never brought out to water when weather is very bad, but are watered inside.

Horses should not have too warm a stable, neither must it be very cold, but free from drafts and dampness. I believe in frame stables, which are the driest. Brood mares and colts should be left loose at least in the daytime, and permitted to have lots of exercise out in open yards when weather permits. If it is necessary that they be tied, they should be taken out and given plenty of exercise daily. Two years ago I had a call nearly every day to attend to horses that had taken sick, because of not exercise enough and improper feeding.

I feed my working team in winter hay and oat straw cut and dampened, with three quarts of chopped oats, corn and bran, mixed with hay and straw, fed three times a day. My driving horse gets about 12 pounds of good hay, with four quarts of whole oats, three times daily. It is also a good plan to have some salt, copperas, soda and ginger mixed together and placed in a small box in each horse's stall, so they may eat a little at will. This might be the means of saving a doctor bill.

I think it a good plan to clip horses that are going to be used regular throughout the winter, but clipping should be done before the weather gets very cold, so the hair gets started before weather is severe. Clipped horses should be well blanketed so they may not get chilled in any way. All horses that are used in winter should be blanketed. All horses that are working in winter, as well as driving horses, should be kept sharp shod, so they will not be afraid to travel on the hard frozen ground, and will not be in danger of a strain from slipping. Do not drive your horses on the frozen ground without shoes until their feet are sore.

Great care should be taken to see that the horses are properly shod, and not have their feet utterly destroyed by the blacksmiths, as is too often the case.

HENRY BENNETT.

Norfolk County, Ont.

Much Outdoor Exercise for Brood Mares.

To the Editor FARMER'S ADVOCATE:

SIR,—I consider Mr. Rennie's winter ration for idle horses a good one, and is also cheap, although I have never had any experience feeding ensilage to horses. Our stock of horse fodder consists of hay, oats, oat straw, bran and turnips. Our idle horse ration is very simple and serves to maintain the teams in good health and nice condition during the winter months. It consists of top-threshed oat sheaves run through the cutting-box and sprinkled with water slightly salted. Each horse gets six scoop-shovels full per day in three feeds, and one turnip in the morning. When the teams are working they get three gallons of oats per day and all the timothy hay they will eat up clean. The driving horse gets three gallons of oats per day in three feeds and a good forkful of timothy hay at night. This keeps him in fine condition for the roads, always feeling well, never lazy, and seldom sweats to any extent.

The brood mares are fed much the same as the idle work horses, and get much outdoor exercise. This we consider very important, as it keeps them hardy, vigorous and in fine form to nourish their growing foetus. We seldom have accidents with brood mares, and our foals almost always come strong and healthy. The foal, yearling, two-year-old and three-year-old offspring of our road dam Maud secured good prizes at last Toronto and London exhibitions. Yearlings and two-year-olds are fed on cut oat sheaves and bran mixed and fed often in small quantities. They also get plenty of good oat straw to pick over. Foals get ground oats and bran fed often in small quantities and a warm scalded bran in the mornings. They also get good clover hay for their night feed. We are very anxious to have our foals grow rapidly, as they invariably do on this ration, which fits them for rapid development during the following summer and in shape to keep on growing the following winter on the much coarser feed. We value wheat bran very highly for all young horse stock, as it is not only healthful but it tends to rapid and substantial development. We water all horses before feeding.

With regard to stabling we may state that our idle horses, working team and driver are tied in

single stalls in a comfortable stone stable. Brood mares are also kept in the stone stable in loose box stalls. The colts and fillies all run loose in a well-ventilated frame stable, which remains at a moderate temperature.

We find it necessary to keep our working horses and driver shod most of the time. When the calks begin to get worn down we have them reset and recalked in order to save the shoes and keep their feet right. We prefer the natural coat of hair to having horses clipped. In order to keep their coats short and slick we blanket in the stable even though it is at a comfortable temperature.

York Co., Ont.

J. B. COWIESON.

Maritime Notes.

BETTER LAMBS WANTED.

While talking lately with one of our largest buyers of sheep, he complained of the large number of small, light lambs that were offered for sale. They are totally unfit for export, and have to be disposed of at a very low price for local use. In fact, there is no money in them for anybody. Of all the animals upon the farm none should give better returns than the sheep, and none can be so cheaply and easily reared; but no matter what care may otherwise be bestowed upon them, really good lambs cannot be raised when sired by the scrub ram so generally used. With fifteen ewes the use of a good ram will produce enough extra each year to pay for him, even though the ewes receive no better care than is at present bestowed upon them, and better care will produce proportionately better returns. Breeding ewes can be well and cheaply wintered upon roots and straw, with an occasional feed of hay. I have often read in agricultural papers that roots must be fed in very small quantities to ewes before lambing, and possibly this may be true in cases where they are fed upon good clover hay, with a daily ration of grain, but these conditions do not generally exist here, and I have never known any trouble to follow a liberal use of roots. After lambing, hay should be substituted for the straw ration of oats, and bran should be added and maintained until the grass is far enough advanced to supply the ewes with all they need. Another matter of which buyers complain, and which causes a loss to the seller, because something is always taken off the price in consequence of it, is that a large number of the lambs are not docked and the rams castrated. These operations are very simple and should be performed when the lamb is about three weeks old. Still further improvement might be made by weaning the lambs about the last of August, or at least by the middle of September. They should then be put upon good grass, preferably a piece of second-growth clover, and, if possible, a little grain should be given them daily until sold. The sale of the lambs is one of our chief means of income; try and make it yield as much as possible.

PORK-PACKING INDUSTRY WANTED.

The William Davies Company, of Toronto, has lately had an agent in New Brunswick looking up information with a view to establishing a plant for packing pork. It was interesting to watch the discussions which took place in the St. John Board of Trade and elsewhere. Those who had the good of the country at heart were for giving all the assistance possible to the scheme, while those who can never see any good in a progressive movement, and those who thought they saw a menace to their local trade, raised all sorts of objections and difficulties—the company would likely want certain privileges granted them—the supply of hogs was not sufficient—the farmers could not increase the number of pigs they kept—we could not compete with Upper Canada and the West when grain was cheap—anything and everything which was calculated to discourage the project. Then the farmers began to be heard from, and in no case were they otherwise than glad to welcome a scheme that would give them a steady and sure market for their hogs. The end has not yet been reached, but every person having the interest of their Province at heart must hope that the final report will be favorable. The number of pigs at present kept upon our farms is very small, for the simple reason that we have no market for them. There are no curing and packing establishments and no export trade, while our local trade is largely supplied by imported cured meat. If we had to depend upon grain for the production of pork we certainly could not compete with Upper Canada; but we can grow clover and roots to perfection, and with these and a little grain can produce the finest kind of pork, but we will have to use good boars in breeding, and of a type suited to the demands of the trade. The large fat hog with heavy shoulders and hams is a thing of the past; it has been supplanted by the long, rangy, deep-sided pig, that will turn the scales at from 150 to 200 pounds at six to eight months of age. Wake up, farmers, your interests are at stake in this question; try and help establish a new industry among us!

Antigonish County, N. S.

[NOTE.—Our last issue contained an interesting announcement from Mr. Macdonald re the establishment of a large and well-equipped packing-house in Prince Edward Island.—EDITOR.]

Attend to your "Farmer's Advocate" subscription early, and avoid regrets for oversight.

The Smithfield Club Show.

From December 6th to 10th the Smithfield Club Fat Stock Show was held at Islington, London, England. This was the 99th annual uninterrupted anniversary of the 1st show held under the auspices of this Club. The President this year is the Marquis of Huntley. His Royal Highness the Prince of Wales has accepted the Presidency for the Centenary Exhibition, which will be held in 1898, when it is expected the event will be marked by an extraordinary revival. The changes in this show from year to year in the ordinary course are not marked, the number of entries remaining fairly constant. In 1895, 716 entries were made; in 1896, 712, and this year 703—a slight falling off, it will be noticed, due, no doubt, on this present occasion to some alterations in the classifications, such as grouping in some of the classes where heretofore single animals were shown, and to the active season's sales which have removed many fatted animals from intending exhibitors. The number of cattle exhibited this year was 364, or 30 more than in 1896. The total was composed as follows: Devons, 35; Herefords, 20; Shorthorns, 50; Sussex, 26; Red Polled, 12; Scotch Polled, 57; Highland, 22; Welsh, 23; Small Cattle, 31; Cross bred, 69; Extra Stock, 16. The cattle contest is always keen and the animals are invariably of a high order of merit. The sweepstakes this year was a blue-gray, from a Shorthorn dam and Galloway sire, weighing 1,890 lbs. at an age of 1,033 days, an average daily gain from birth of 1.82 lbs. He was owned by Mr. John Wortley, who carried off the Smithfield championship honors in 1888 and in 1891. The reserve champion was the Earl of Rosebery's Aberdeen Angus, Scottish Queen, that won the championship the previous week at Edinburgh, but as neither of these animals conformed to the condition of having been bred by the exhibitor, another beast had to be sought for the Queen's Challenge Cup, which honor fell to the Shorthorn-Aberdeen heifer, Blue Bell, bred by J. Douglas Fletcher; the reserve falling to the same exhibitor's Aberdeen-Angus steer, Prince of Ethic.

Royal exhibitors were, as usual, well represented. The Queen showed three Devons, two Herefords and four Shorthorns; the Prince of Wales, a Shorthorn heifer, a cross-bred, and four pens of Southdowns; and the Duke of York, nine Red Polls, as well as two exhibits in pig classes, good



CROSS-BRED STEER, "GENERAL."
Champion at Norwich, Birmingham and Smithfield Fat Stock Shows, 1897.

premiums being taken by each of the regal contestants. There was a considerable decline in the number of sheep, the total being 199, against 220 last year. The principal falling off was in Shropshires and Oxfords. The champion plate for best pen of three long-wooled sheep or lambs in the show, viz., Leicesters, Cotswolds, Lincoln, Kentish, Devon, Cheviot, Mountain, etc., was won by Lincoln shown by Mr. Henry Dudding; reserve, J. McDowall's Cheviots; and for best pen of three short-wooled, viz., Southdowns, Hampshires, Suffolk, Shropshires, Dorsets, and Cross-breds, the plate was secured to Mr. J. J. Coleman on his Southdowns; reserve, T. B. Buxton's Hampshires.

Pigs made an interesting show, the championship pen being a cross-bred lot (Berkshire with Large White). It is thirteen years since cross-bred pigs secured this honor.

Notes on New Brunswick Live Stock Conditions.

BY JOHN ROBERTSON, LATE DAIRY SUPERINTENDENT.

In New Brunswick there are several localities which are admirably adapted to the breeding and raising of horses, cattle and sheep. The county of Westmoreland contains large areas of strong marsh land which yields large crops of hay. Much of this land is dyked in and has been broken up and seeded with timothy and clover, and gives large crops of hay, a considerable quantity of which is baled and shipped to Boston and other American cities.

In the Sackville district 20 years ago there were some excellent herds of Shorthorn cattle fed for the English market, but when the market gave way and the price came low many of the feeders lost money and gave up the business, and for some years both New Brunswick and Nova Scotia imported from Ontario a considerable number of beef cattle to supply their own needs.

Prince Edward Island is in a better position both as regards horses, cattle and sheep. The farmers there have given more attention to breeding and raising horses and other stock, their land being more level and easier cultivated and more fertile than the most of the upland of the other Provinces.

In Kent County there is some good pasture land for dairying and stock raising, but there is great need of improvement in the stock, both of cattle and sheep. There is great need of education along these lines in order to farm successfully.

In King's County, especially in the Sussex district, there has been a very decided improvement in farm stock, and the interest is still increasing.

In Charlton County there is some good stock, but nothing like what there might have been if farmers had studied the

raising of stock more carefully, and if they had sold less hay and oats both the farmers and the farms would have been in better condition than many of them are in to day.

In nearly all the counties of New Brunswick there are districts where horses, cattle and sheep could be successfully raised if proper attention were given to the business and the right kind of stock utilized.

The breeds of horses in the Maritime Provinces are pretty well mixed up. There have been a number of English Shire, Clydesdale, Percheron and Cleveland Bay horses imported which have improved the breed of horses very much; also a few Standard-bred trotting horses have been imported, which have produced a very good, useful driving horse for light work. Since street cars are now mostly run by electricity there is not the demand for what may be called good hard-legged general purpose horses.

The class of horses that pay to raise are either good sound heavy draft horses fit for dray work or good sound saddle, cavalry and carriage horses; these classes bring fairly good prices; but, like the cattle, the great want is the want of the right kind of females. Pure-bred mares are not very plentiful either, and they are costly; many farmers grudge to pay for service, although their offspring would likely be worth double the money the offspring of a mongrel would be. "Penny wise and pound foolish" is not out of date yet.

Cattle. The general run of stock may be characterized as mostly native purposeless cattle, with some improvement here and there by the importation of a few Shorthorns for feeding, and a few Ayrshires, Holsteins and Jerseys for dairying.

The Shorthorn breed stands at the top of all the breeds for making beef, and where a farmer wishes to follow that line of practice the nearer pure-bred he can have his stock the better, and the more profit he will make if he understands his business properly.

In them we now have embodied the skill and the knowledge and the experience of the best minds of the best cattle-breeders for generations, and it takes careful breeding and feeding to maintain the stock in the state of perfection to which it has been brought by our best breeders.

The next best cattle for feeding where pure-bred Shorthorns cannot be attained to is an Ayrshire female crossed by a Shorthorn male. They are not so heavy, but make fine meat.

Dairy breeds—Ayrshires, Holsteins, and Jerseys. It is a matter of choice by the individual farmer which breed he may use. The location and surroundings should be taken into consideration. If near a town or city, and buttermaking is to be practiced, then the Jerseys are to be preferred; there is no breed equal to the Jerseys for fine butter, but they need good treatment.

If producing milk is to be the chief aim of the farmer, then the Holstein would come into place, but she needs special conditions, as she is large in size. She needs level ground and good pasture so that she does not have to labor much to get her belly filled; these are the conditions she has in her native home, and the nearer to these conditions she is kept the better for her.

If producing milk and part beef is to be followed, with general mixed farming, then the Ayrshire takes her place; perhaps she is what may be termed the best general purpose cow for the common farmer. They are an old-established breed, they have a history for nearly 300 years. They are not very large, although some of them attain good size. They have a sound constitution and give good returns for the food and care they receive. By using pure-bred Ayrshire males and breeding from only the best milkers of common or grade stock the common stock of the farm can be more quickly improved and graded up to a higher standard of usefulness and profitability than by any other method known of, but don't use an Ayrshire male one season, a Jersey male next season, and perhaps a Holstein male the next. Whatever breed you choose, stick to it and make the most of it.

Sheep. There have been several importations of sheep introduced in the past, but they soon get mixed up and very few pure-breeds are to be found. Too many different breeds have been introduced. There is a uniformity in conditions in the Maritime Provinces and there is no need for a great many different breeds. Two or three good breeds would be sufficient, and keep them separate. Leicesters, Cotswolds, Cheviots and Southdowns are among the most useful breeds. The same line of breeding is necessary with sheep; use only pure-bred males. The first cross lambs may do fairly well, but cross a cross lamb with a cross male and there will be poor, delicate stock.

These arguments are true in regard to Swine, only they have mostly a short time to live. Pork packers want hogs 8 months old to weigh 160 to 180 pounds live weight, and one to one and a quarter inches of fat on the back when cut up. The Tamworth, Improved Yorkshire and Improved Berkshires are the most desirable breeds for English bacon.

No difference what the article may be, quality determines the value. The higher the quality the higher the price. The first consideration should be, quality next cheapness of production, but never sacrifice quality for cheapness.

C. P. R. Freight Rates Reduced.

In accordance with the agreement made by the Dominion Government with the C. P. R. and ratified at the last session of Parliament, when the Company was given the contract for building the Crow's Nest Pass Railway, a new freight tariff took effect on Jan. 1. On agricultural implements, binder twine, household furniture (new or old), and certain building materials (not including lumber), the rates are reduced 10 per cent.; on coal oil, 20 per cent.; and on fruits of all kinds, 33 per cent. These very material reductions will be especially appreciated in Manitoba and the Northwest, but apply all over the C. P. R.

Disputed Points in Sheep Wintering.

In the care of sheep, as in that of any other stock, there are many operations of which there is a diversity of opinion even among leading shepherds. We will refer to some of these and ask our readers to discuss the points as they think well.

1. *Feeding roots.*—At this season many object to feeding roots to pregnant ewes, being fearful of causing the lambs to come large, soft and with little vitality. Others feed from 6 to 8 pounds per ewe daily and consider the practice beneficial to the health of the ewes, without fear of evil results to the lambs. What quantity of roots, if any, is it safe to feed breeding ewes before lambing?

2. *Watering.*—With sheep the normal proportion of water to dry food is about 2:1, while with cattle about 4:1. When ewes get roots to the extent of a few pounds per day, water in cold weather will not be taken, but if they are on dry feed they need a drink. Now, the question is, will snow answer as drink or is it better to give them access to fresh water?

3. *Pea straw vs. clover hay.*—We have found it quite unnecessary to feed breeding ewes a forkful of hay before lambing when we have plenty of good pea straw. This, with a small quantity of oats, bran and turnips, gives excellent results. What have others to say in this regard?

4. *Peas unthreshed.*—A horseman of our acquaintance took great credit to himself for keeping his team in good condition, while he claimed that all they got was oat straw, and that wasn't half threshed. Some of our best shepherds find good success in feeding pregnant ewes up till lambing time on unthreshed or top-threshed peas, claiming that the ewes do well, produce fine, strong lambs, and have an abundance of milk for them. We have lost sheep in this way, but they had not become accustomed to the food or had been fed too freely. In discussing this question it would be well to dwell upon the safety of gradual changes in diet.

5. *Salting.*—Sheep, above all farm stock, should have salt constantly before them. Some mix a quantity of pine tar with salt, which is considered a healthful practice. Others mix in a proportion of sulphur, both for the health of the sheep and its effects in combating ticks. What is the best practice?

6. *Dipping.*—Too few appreciate the importance of keeping sheep free of ticks and lice. Animals of any sort will waste their owner's feed if continually worried by insect pests. Our practice is to dip the entire flock, lambs and all, just after shearing and again in the fall before cold weather sets in. Some dealers when they buy tickley sheep in winter dust them with pyrethrum (insect powder) or hellebore, and secure good results; but it is quite safe and probably better for the health of the sheep to use one of the prepared dips, opening the wool at intervals and pouring from a coffee-pot. Do our reading shepherds consider this the best practice, or what changes should be adopted?

7. *Cleaning pens.*—Mr. Rennie, farm superintendent Ontario Agricultural College, places great stress upon keeping the sheep pens cleaned down to the floor, claiming that accumulations of litter and manure give off gases harmful to the sheep. In our practice we have not found cleaning twice during the winter too seldom. We feed pea straw and use the refuse for bedding the pens, which are always dry underfoot and continually sweet and fresh.

8. *Exercise.*—During the fall before snow comes it is well to allow the flock access to a pasture field, but after deep snow comes continuous access to roomy yards seems the ordinary custom. Some recommend feeding whole roots thrown about the yard as an inducement to activity and exercise. What is there to say on this point? Some sheep owners dare not allow the flock outside the fold at night for fear of dogs. What is the best dog-proof arrangement?

9. *Creep pens for lambs.*—As soon as lambs are able to eat—about a month old—a portion of the pen should be divided off by hurdles, having a "creep" through which the lambs, but not the ewes, can enter. In our opinion the sides of the opening should consist of rollers so that the lambs when passing in and out will not scrub out their wool. In this pen a dainty ration can be kept before the lambs so they can feed at will. A good mixture for this purpose consists of cracked peas, broken oats, finely-nutted oil cake and a small proportion of wheat bran; savory clover hay should always be kept before them. Some sheep owners consider this lamb pen an unnecessary trouble, and allow the lambs to hustle for themselves along with their dams. Which is the better plan?

While we invite free and liberal discussion upon the points brought up, we do not expect the entire ground to be covered by each contributor. What seems wisest would be the securing of the greatest good to the largest number, which will result by each confining himself to two or three points and dealing with them fully, trusting to others to take up the remaining questions.

How It Helped Him.

In paying up his subscription for 1898, Mr. Jas. Dillon, Russell Co., Ont., writes that he considers it a privilege to thank the FARMER'S ADVOCATE for the service it has given him. "Since taking it," he adds, "I am in a position to make dollars where I could make cents before. Am now wintering 17 pigs where I used to have one, and keep 20 head of cattle where I had 7 or 8."

Beef Type and Its Effects Upon Economical Production.

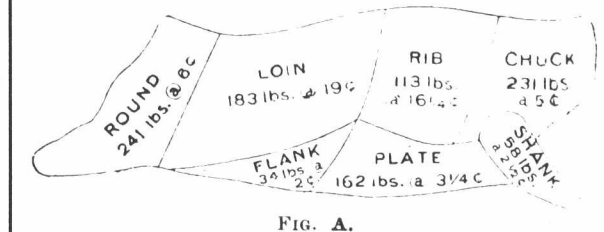
BY C. F. CURTISS, DIRECTOR IOWA EXPERIMENT STATION.

No one is more concerned in what constitutes the essential qualities of a good beef animal than the man who breeds and feeds for the block; for it must be kept in mind that this is the ultimate end of all beef stock, and the best beef animal is the one that carries to the block the highest excellence and the most profit. This, in a word, is the keynote of the whole problem, and if we do nothing more than look squarely at this subject in the right light we will have made a good beginning. It means everything in the live stock business to begin right, to be traveling upward—headed in the right way. To be headed the opposite way is fatal. There is a well-defined beef type that admits of less flexibility than is generally appreciated. We hear much about the dairy type, and there is a dairy type, fairly clean-cut and well defined; but there is also a beef type, more rigid and less variable. All know that there are not a few cows of quite positive beef tendencies capable of making very creditable dairy records, and a great many that combine milk and beef to a profitable degree; but who can recall an instance of a good carcass of beef ever coming from a steer of a pronounced dairy type or breed? So clearly and definitely is this beef type established that to depart from it means to sacrifice beef excellence.



HIGH-GRADE SHORTHORN STEER. Raised as a skim-milk calf by the Iowa Experiment Station. Best steer in the Chicago yards on a day when there were 26,000 cattle on the market.

The illustration of grade Shorthorn steer pretty accurately represents the ideal beef type. The steer was raised as a skim-milk calf at the Iowa Experiment Station. He was the best steer in the Chicago yards on a day when there were 26,000 cattle on the market. The first thing that should be looked to is the general beef form—low, broad, deep, smooth and even, with parallel lines. No wedge shape is wanted for the block. Next in importance is a thick, even covering of the right kind of meat in the parts that give the high-priced cuts. This is a very important factor in beef cattle that is often overlooked. Here is a drawing representing the *wholesale* method of cutting beef, showing that about 28 per cent. of a good carcass of beef sells for nearly 64 per cent. of the total value.



The high-priced cuts are the ribs and loins. These parts on an average sell for about three times as much per pound as the others. Good, broad, well-covered backs and ribs are absolutely necessary to a good carcass of beef, and no other excellences, however great, will compensate for the lack of this essential. It is necessary to both breed and feed for thickness in these parts. And mere thickness and substance here are not all. Animals that are soft and patchy, or hard and rolled on the back, are sure to give defective and objectionable carcasses, even though they are thick; and they also cut up with correspondingly greater waste. The men who buy our cattle and fix their market value are shrewd enough to know almost at a glance how much and just what kind of meat a steer, or carload of steers, will cut out, and if the producer overlooks any of the essential points he is compelled to bear the loss. Then, in addition to securing the general beef form and make-up, together with good backs, ribs, and loins, there is a certain quality, character, style and finish that constitute an important factor in determining the value of beef cattle. One of the first indications of this is to be found in the skin and coat. A good feeding animal should have a soft, mellow touch, and a fine but thick and heavy [NOTE.—The diagram (used by Prof. Mumford, Missouri Agricultural College, before the students) represented by Fig. B represents the carcass of a well-fattened grade steer as cut up by the Chicago butchers, giving retail price per pound for the different cuts. A good steer dressing 800 pounds has thus 708 pounds of marketable meat. It will be noticed that all the most valuable cuts are taken

from the ribs, loin, and hind quarters, and together weigh 346 pounds, and at the prices indicated on the diagram bring \$44 55. The less valuable cuts from the fore quarters, belly, and flank, weigh 362 lbs. and bring only \$16 48, hence the significance of feeding a good grade steer rather than a scrub.—ED.]

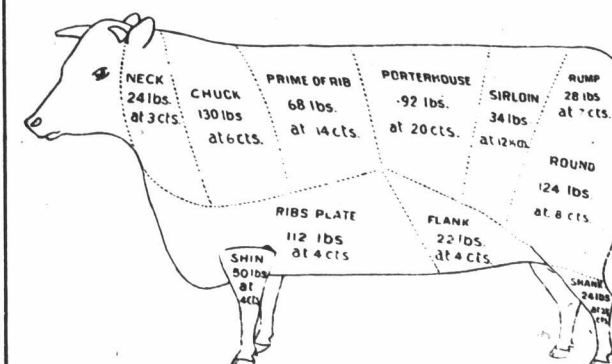
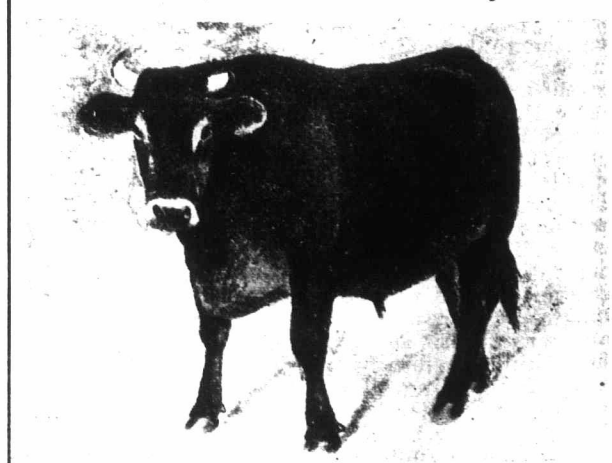


FIG. B.

coat. A harsh, unyielding skin is an indication of a sluggish circulation and low digestive powers. The character and finish exemplified by a clear, prominent yet placid eye, clean-cut features, fine horn, and clean, firm bone, all go to indicate good feeding quality and a capacity to take on a finish of the highest excellence, and consequently to command top prices. I would not tolerate too large or too coarse bone. Coarse-boned, rough animals are almost invariably slow feeders and hard to finish properly. A certain amount of size is necessary, but it should be obtained without coarseness. The present demand exacts quality and finish rather than size. Besides these qualities, and above all, it is necessary to have vigor and constitution. We find evidence of these in a wide forehead, a prominent brisket, broad chest, full heart girth, and general robust appearance; and without them other excellence will not have its highest significance.

I wish to call attention, by way of emphasis, to the necessity of having the right kind of cattle to insure a profit, or rather to avoid a loss, under present conditions. There is not a very great difference in the rate of gain, or the number of pounds of increase in weight from a given quantity of feed, that will be made by a representative of the best beef breeds and a genuine scrub, a Jersey or a Holstein steer. This is a fact that practical breeders and improvers of live stock were slow to accept at first. In fact, they did not accept it until it was repeatedly demonstrated, and some will not concede it yet, but the evidence is constantly accumulating, and it is useless to ignore facts. After all, there is no well-founded reason why a Shorthorn or a Hereford or an Angus should make more gain in weight from a bushel of corn than a Holstein, a native, or a scrub. This is governed altogether by the digestive and assimilative machinery of the steer. The Holsteins, for instance, are known to be voracious eaters, and the despised scrub usually has a digestive system like a goat—and is always hungry. Scientists have discovered that civilized man has no greater powers of digestion than the barbarian or the Indian. Neither has the improved steer better digestion than the native. The feeder is often deceived in the belief that he has a good bunch of cattle simply because they feed well and gain rapidly. Economy of production is an important factor, but is by no means all. It is even more important to have a finished product that the market wants and will pay for, than that it simply be produced cheaply.

For instance, take as illustrations two steers fed at the Iowa Experiment Station; one is a Jersey and the other a Hereford. While they were in the feed lot the Jersey made a gain of two pounds a day for nine months, and the Hereford 2.03 pounds for



HIGH-GRADE JERSEY STEER. Fed and marketed by the Iowa Experiment Station.

fourteen months. There was practically no difference in the rate and cost of gain. Judged by the record they made up to the time they went to market, the Jersey would take rank close to the Hereford in both rate and economy of gain. But the interesting part of the comparison came later. The Jersey took on flesh rapidly and was exceedingly fat and well finished. He was as good as it is possible to make a Jersey steer. Yet, when he went to market he had to sell \$2.12 per hundred below the top quotations, while the Hereford went ten

cents per hundred above the top prices for any other cattle on the market. But you may say that this was partly prejudice. I used to think so, but since I have followed cattle through the feed lot and to market and onto the block, and carefully ascertained all the facts for several years, I have changed my mind. I will show you where the difference was in those two steers. This steer (the Jersey) belongs to a breed that has been developed for centuries for the specific purpose of making butter—that is, putting the product of its feed into the milk pail. They are rough, angular, and bony, and when you fatten them, as you can do, they do not put the fat into the tissues of the high-priced cuts of steaks and roasts on their back; this steer had 190 pounds of what is termed loose or internal tallow and 55 pounds of suet on a 763-pound carcass; that is, 32.1 per cent. of that steer's carcass was tallow. Tallow was at that time worth 4 cents a pound, while the best loin cuts were worth 19 cents, at wholesale. And besides that, this steer only dressed 57.5 per cent. of beef, while the Hereford dressed 67.5 per cent. Then, the Hereford only had 95 pounds of tallow and 38 pounds of suet on an 888-pound carcass—equivalent to 15 per cent. And besides this striking difference in percentage of meat in high-priced cuts, the meat of the Jersey was very much inferior to that of the Hereford. The Jersey steer went on accumulating fat around his paunch and internal organs to the extent of nearly one-third of his body weight, while he had not meat enough on his back to decently cover his bones. This explains why you can never get a Jersey or a Holstein or any other roughly made steer smooth, no matter how long you fatten him. There is a reason why rough cattle do not sell. These same distinctions are largely true of the native and all other unimproved cattle, when an attempt is made to fatten them for beef. The men who buy them don't need to kill them to find it out; they know it as soon as they see them.

So, when we put a steer into the feed lot to fatten, it is all right to know that he is gaining rapidly and cheaply, but we also want to know whether he is making a 4-cent product or a 19-cent product. If he hasn't the beef type, and hasn't the characteristics of a beef animal bred into him, he will fall short of the mark. Feed alone does not make the high-selling product.—*Kansas State Board Report.*

FARM.

The Ontario Agricultural and Experimental Union.

The nineteenth annual meeting of the Ontario Agricultural and Experimental Union was held at Guelph College on Dec. 9th and 10th. In the absence of the President, D. J. Gibson, B. S. A., the chair was occupied during the opening sessions by Robt. Harcourt, B. S. A., the assistant chemist, and on the second day by Vice-President Geo. Harcourt, B. S. A. There was a good attendance of students and other members of the "Union." The central object of this annual gathering is the hearing and discussion of the work of the Union as conducted over the Province by its members. This work was commenced in 1886, when one experiment was conducted by 12 experimenters. The third year, 1888-90, experimenters were actively interested, and in 1897, 2,835 experimenters co-operated with the "Union" with 18 experiments in various phases of agriculture. From this number 610 successful reports were received by Secretary C. A. Zavitz in time to summarize into a report of the averages grown over the Province. The 18 experiments conducted in 1897 represent nearly all the farm crops grown in Ontario. As is our custom, we will withhold the reports of the various varieties of crops until near spring, when they will be of more seasonable interest.

A notable feature of the meeting was an address by Prof. Goldwin Smith, touching on "the advantages of scientific farming." Reference was made to the ever-changing condition of English agriculture. In a sentence he outlined the history of agriculture in that country since his early recollections. He pointed out that what the wealthy estate owners were able to do in England in the way of agricultural improvement our agricultural institutions are doing for us. While English agriculture some time ago supported the landlord, the tenant farmer and the laborer, the decline in prices, due to competition, had so reduced returns that these three classes could no longer be supported. Prof. Smith regretted to see the agriculture of any country suffering a depression, as national prosperity depended on it. He was inclined to think that the excessive resorting of young men to the universities and professions would escape social and economic danger only when scientific agriculture became the advanced line pursued. Reference was made to his first visit to the College 25 years ago, when it was young and struggling. He was gratified to see that it was now securely established in the confidence of the Province, and likely to return tenfold or hundred-fold for the money spent upon it.

Features in *Successful Farming*.—A number of brief addresses were made upon features of successful farming by ex-students of the College. Mr. C. A. Keil, Chatham, Ont., referred to the necessity of conducting any business with push, perseverance and understanding. It is necessary to get out of ruts, pursue new methods and study to increase profits. By participating in the

advantages of the Union, crop yields can be much increased, from which, if it became general over the Province, an enormous advantage would be gained. Details must be looked carefully after, and if closely watched in the care of farm implements and live stock a great saving would result. Keep only the best of every class of stock, and grow only the best varieties of crops. It is as easy to look after and feed a \$50 cow as one only worth \$25, which, as a rule, returns no profit. He advocated mixed farming on a concentrated scale. Mr. T. Lloyd Jones, Brantford, referred to the lack of humus in the soil as a potent factor in decreasing the returns from the land. In order to succeed a knowledge of how best to conserve moisture and to render soluble plant food and appropriate it is necessary. A proper knowledge of the breeding and care of live stock is also a favorable qualification. Mr. G. A. Brodie, Bethesda, spoke of the changing conditions, citing the introduction of rapid transit for food products, which is bringing the whole world into competition. We cannot hope to produce ordinary or cheap products as cheaply as some other countries where land is cheaper, so that our success depends upon producing the best in every line we undertake. The governments are providing for improving our marketing facilities, which is lessening the cost of production. Many of the points referred to by previous speakers were introduced in other forms and developed to some extent. Other speakers dealt with the advantages of a business education and also the use of agricultural literature. It was maintained that agriculture should be given more attention in the public schools. Mr. W. W. Cooper, of Kippen, believes failure frequently results from the too wide spreading of our energies. While mixed farming is his choice, he considers each farmer should have some specialty, Mr. Cooper's being the breeding and rearing of Shropshire sheep.

Dairy co-operative experiments were reported on by Mr. T. C. Rodgers. The experiments were only partially successful, owing to the extra busy season in the factories. Lack of proper care of the milk by patrons was given as the most usual cause of trouble in the factories. A discussion on the subject was led by S. P. Brown, Birnam, who contended that much flth was received at the factories, which could easily be prevented by careful milking, straining, etc. Cows should not be allowed to drink at pools nor eat weeds. Mr. Brown has a dread of patrons using aerators, as his observation had led him to believe that they were indifferently cleaned. He much prefers his patrons to aerate by the use of the dipper in a pure atmosphere. Pasteurizing is becoming largely practiced in creamery work and starters more generally used in cheese factories. Mr. Brown has found the judicious use of starters to overcome gas in milk. Reference was made to the proper moisture for the curing-room. If too dry the cheese is liable to crack, and if too damp mould will give trouble. The question of proper temperatures for separating came up, and it was decided that much fat was lost by too high a temperature in shotgun cans. Mr. Brown considers that milk may be chilled too quickly, thus rendering it viscous so that the cream cannot rise expeditiously. It was considered that deep pails would give best separation in summer if ice were used, and shallow pans in winter. In the running of separators it was found that some did closer work with one temperature, while others required more heat.

Economic feeding of animals was dealt with by Mr. Geo. McKerrow, superintendent of Farmers' Institutes in Wisconsin, in a scientific and very practical manner. He talked from a moderate feeder's standpoint, having before his audience charts prepared for Farmers' Institute work. The elements of foods and their function in the animal body were explained. Protein forms muscle, ash, bone; fats, fat and carbohydrates, heat and energy. In Wisconsin protein can be grown at a cost of 1.5 cents per pound, fats at 3.5 cents per pound, and carbohydrates at .5 cent per pound; the cheapness of the last named product being possible by the growing of corn, for which that State is famous.

While protein goes chiefly to muscle, it can produce other substances when other elements are lacking, but it pays to feed the other elements when they are cheaper. It is well to feed carbohydrates instead of fat, because it is cheaper. The best balanced ration was put down as 1 of protein to 6 of other substances, but to have these in definite proportions is not all that is necessary. A balanced ration could be fed that would starve an animal. A ration must be digestible and palatable. It is necessary to use good judgment in compounding a ration, as cheapness as well as many other circumstances must be considered. The age of animals should be considered in deciding how to feed them. Oats are in themselves well balanced, and by reason of their openness are easily digested. Because of their rough hull they are well masticated, which is an important step in digestion. We know from experience that one of the best coarse fodders we can use is clover hay, the component parts of which are each in almost ideal proportion to form a perfect food, 1 to 5.2, while timothy hay is 1 to 1.5; corn fodder, 1 to 15.8, and corn grain, 1 to 9.7; so that one can readily see the reason that stock do better on clover hay and oats than on these other foods having so small a proportion of nitrogenous matter. It is invariably seen that animals fed entirely on corn have dry, harsh skins, and as the skin is a continuation of the lining of the alimentary canal, we know that the digestive organ is in

the same parched, lifeless state. Just here the speaker referred to a Wisconsin feeder who had two carloads of well-bred steers which were being fed exclusively on corn, which was in fine, well-cured condition. They had abundance of it and plenty of good water, but they were not thriving, their skins were dry and hard, and their owner consulted Mr. McKerrow, who, upon learning their diet, concluded at once what was wrong. The result of the conversation was that one car of the steers was sold, and with the price a supply of oil cake was purchased. This was fed to the remaining steers, two or three pounds each daily, along with the corn, and very soon their skins began to soften up, and they went right ahead and made rapid gain. Mr. McKerrow was of the opinion that a supply of roots would have had a beneficial effect along with corn, as they would preserve the digestive organs in better condition. It was claimed that moderate grain feeding was better than heavy. It was found at the O. A. C. steer-feeding test last winter that $\frac{1}{4}$ of a pound per 100 pounds live weight gave better results than 1 pound of grain per 100 pounds live weight.

Mr. McKerrow dwelt at length on the value of succulence, palatability and variety of foods. This was illustrated by showing how ridiculous it would be to feed a man on potatoes for a few weeks, then meat for a while, and after these were exhausted, fill him up daily on bread. This is like some ignorant men feed stock. They use up the rough stuff in the fall, and by spring the animals are not able to digest coarse food. The old way of merely preserving the animals' lives through the winter season is the sure road to financial loss, as then the animals make no return for what they consume. It is estimated that a 1,000 pound cow requires 17.5 pounds daily of dry matter to maintain the animal without gain, whereas 25 pounds of well-balanced, good, dry food daily per 1,000 pounds of live weight will keep a thrifty beast gaining rapidly or producing a good flow of milk. A model 1,000 pound cow's daily ration was given as follows: Silage, 30 pounds; clover hay, 8 pounds; corn meal, 4 pounds; wheat bran, 6 pounds, and oil meal, 2 pounds. Oil meal was very highly spoken of for its hygienic effects. In conclusion, Mr. McKerrow complimented the O. A. C. on its grand work, and that of the hundreds of small experiment stations throughout the Province in connection with the Experimental Union.

Ontario Fruit Experiment Stations.—After Prof. F. C. Harrison gave a report of his foul-brood investigations, and Prof. H. L. Hutt reviewed the work of the horticultural committee, President Mills stated some of the advantages of the Ontario Fruit Stations. At present there are, in various parts of the Province, 11 stations and two sub-stations, covering all the useful varieties of fruits in their respective suitable fields.

We have given reports from a number of these in the late issues of the FARMER'S ADVOCATE. The Board of Control consists of President Mills and Prof. Hutt, representing the College, and four representatives of the Fruit Growers' Association. In all cases the location of the stations and the men in charge have been selected because of their evident adaptability. The location of the stations and the fruits experimented with are as follows: Lincoln, tender fruits; Wentworth, grapes; Halton, blackberries and currants; Bruce, raspberries and commercial apples; Grey, plums; Simcoe, hardy apples and hardy cherries; Ontario, pears and commercial apples; Northumberland, apples; Grenville, hardy pears and hardy plums; and Wentworth, cherries. The sub-stations are at Guelph, for strawberries, and Simcoe, for gooseberries. The value of the work of these stations will annually increase as our cold storage and rapid transport systems are perfected. The session concluded after a very interesting address by Prof. T. G. Jarvis, followed by W. R. Graham, B. S. A., and Mr. George Duff, on dressed poultry for market.

Officers—President, George Harcourt, Toronto; Vice-President, H. T. Beckett, Hamilton; Secretary, C. A. Zavitz, O. A. C.; Treasurer, H. L. Hutt, O. A. C. Board of Directors—Dr. Mills, O. A. C.; N. Monteith, Stratford; J. A. Campbell, Simcoe; S. P. Brown, Birnam, and C. A. Zavitz. Auditors, Allen Shantz, Waterloo, and L. Grisdale, O. A. C.

Amende Honorable.

SIR,—Last month a letter appeared in the FARMER'S ADVOCATE above my signature, referring to the matter of the resignation of Mr. John Craig, Horticulturist, Central Experimental Farm. At the time I wrote that letter I was informed by what was supposed to be reliable information that Mr. Craig resigned because Dr. Saunders and he could not agree on the nature of the work to be carried on at the Farm. I have since learned beyond doubt that there was no truth in that statement, and that Mr. Craig resigned on account of personal matters for which Dr. Saunders was in no way responsible. It certainly was an injustice to the "Director" to circulate such a report. I trust he will continue in the future, as he has done in the past, to do all in his power to further the interests of horticulture. Yours very truly,
Essex Ont., Ont. W. W. HILBORN.

Ask your neighbor if he reads the "Farmer's Advocate." If he does not, get him to subscribe now.

Two Windmills on One Farm.

To the Editor FARMER'S ADVOCATE:

SIR,—I have a 14-foot Brantford Ideal power mill, and also an eight-foot pumper and Maple Leaf chopper. My power mill and chopper, everything complete (without stay-rods and mast), cost \$165. The power depends on the strength of the wind. In a strong wind it has fully 10-horse power. We used it two years for chopping and cutting feed. We feed fifty head of cattle for export each year, six horses, six cows and some pigs, which means about nine bags of chop per day. The cost so far has been slight, as the firm has used me right. As far as wear is concerned there is not much wear about it, except the gear and boxing for gear, which can be easily repaired. There are not many inconveniences or disappointments if looked after properly. You can do your work on days when it is not fit to be outdoors. I might state here how I run my chopper. I have it set up on granary, with hopper which holds about sixty bushels of grain, which is carried up by an elevator with light wind; so we are always ready for a good wind.

In regard to cheap power, wind is the cheapest a farmer can get. My mill will pay for itself in three years. Steam is the best power, but is too expensive. It would cost me a lot for wood to do my chopping with steam. I would rather take my grain to the mill than to chop with horse power. I would not recommend wind for everyday work, such as separating milk or pulping roots. We feed our roots whole. I know farmers, however, who pulp with wind.

Brant Co., Ont.

ELI CRESSMAN.

DAIRY.

Uses Tank and Windmill and Waters all Stock Inside.

After two years' experience with my system of inside watering stock, I could not think of doing away with it, especially for milch cows and fattening cattle, as it is quite necessary to water at least twice a day. This can be done with comparatively little work, and without chilling the cattle. My experience has been mostly with dairy cattle, and chilling has a very noticeable effect on the flow of milk, and also on the percentage of butter-fat. For young cattle and other stock that are only housed nights and stormy weather, it will pay to water them about an hour before turning them out, and after putting them in they will drink regularly what they need without doing them any harm. I pump water by windmill into a galvanized tank that holds about twenty-five barrels, erected about the center of the stable, right above the well. It projects about five feet into the loft, and is boxed in so the heat of the stable keeps it from freezing. It is well

to have the tank large enough, in case of a dead calm day. The water is conducted to troughs by means of a three-quarter-inch rubber hose, but a system of pipes laid underground would be more perfect. I am fully satisfied that stockmen would be doubly repaid for all cost and trouble of adopting some system of inside watering.

JAMES BRAY, Oak Grove Farm.
Marquette District, Man.

Inside Watering.

The watering of cows in winter is a question of great consideration. Farmers have widely different methods of tending to stock; some will feed lots of straw and hay and turn their stock out to water once per day, allowing all the cold water the animals can take in. As it takes from two to three hours for an animal to warm the great quantity of water thus taken in, the animal heat is reduced and their strength heavily taxed, and in the spring the animal is turned out poorer than when put into winter quarters.

My experience with cattle of all kinds, whether beefing cattle, breeding cows or young stock, is decidedly in favor of watering in the stable, using long water troughs in front of them. In Manitoba, where the winter is severe, I find it is best to stable my cows as soon as it freezes up for good. The extra milk obtained from them pays for the extra trouble. Cows will fail in milk more from cold than from natural causes. The cows enjoy a good, warm, comfortable stable, as well as a man does a warm house. Have double stalls seven feet wide, so there is plenty of room for two cows to move around a little. I feed both fattening cattle and cows cut feed, made up of oat sheaves, straw and hay mixed, cut into chaff, then put into a large box, some water poured over it; a nice sprinkling of chop is then added and the whole mixed up well; giving each animal what I think they will eat up clean. This is given twice daily, morning and evening, with a little rough feed at noon. I water in the stable all winter, about 9:30 in the morning and about 5 o'clock in the evening. The reason I feed damp cut feed is, that if cattle get some water in their feed they don't drink as heavy from the troughs; their hair never stands on end from

drinking excessively, and the animals come out in the spring slick and fat. I have to feed a little salt twice a week to make them drink enough to suit me. Watering in troughs in the stable the water is at an even temperature, and when animals drink freely it does them more good. Keep the animals thrifty and their blood right by feeding twice per week one part of ground flax with two parts of ground oats. I have never been troubled with "dainty" cattle, or "stalled" cattle, as some call it. We use no ensilage, so flax takes the place, and I believe it is quite as good if fed ground.

W. E. BALDWIN.

Pembina Municipality, Man.

APIARY.

Ontario Beekeepers' Convention.

(SPECIALLY REPORTED.)

The 18th annual convention of the Ontario Beekeepers' Association was held in the Court House, Hamilton, on Dec. 7th, 8th and 9th, with a fair attendance from different parts of the Province.

The President in his address drew attention to the fact that the season just past had been a varied one, some districts giving a good yield, others a scanty, and still others none at all. He also spoke of the desirability of educating many of our beekeepers in better plans of managing their apiaries, and also the general public in the use of honey as an article of diet.

Referring to the minutes and the President's address, Mr. Holtermann, of Brantford, stated that there was too much unripe honey placed upon the market, and that we should take steps to have a limit fixed as to the percentage of water honey should contain when placed before the public. In the discussion following attention was drawn to the difficulty of fixing a proper standard, and to the fact that the breed of bees, locality and season had much to do with the thickness of honey. Prof. Shutt, analyst from the Dominion Experimental Farm, referred to the English standard of 18 to 20 per cent., and that there are cases where the percentage far exceeds 25 per cent., but he considered the Association safe in putting it at 25 per cent. Upon motion it was decided that this Association appoint one or more of its members, and that the Department at Ottawa, the Dominion Experimental Farm, and the Ontario Agricultural College at Guelph be requested each to appoint a man, and that this committee secure samples of honey capped in the hive and find the percentage of water contained therein, and report to our next annual meeting.

Management of Bees in the Spring.—Mr. J. W. Sparling, of Bowmanville, gave a paper on this subject. He emphasized the importance of commencing spring management in reality the fall previous. A first care is abundance of stores, and too much importance cannot be attached to young, vigorous queens. He advocated early setting out, no spring packing, and if stimulative feeding be practiced, that it only be done during the honey dearth between fruit, bloom and clover. Mr. Alpaugh spoke of the desirability of early fall packing, and also stated that comparatively small colonies of young bees were preferable to large colonies of old ones.

Prof. Shutt gave the results of three years' experiments with foundation of various weights. The results pointed toward the use of heavy foundation, the bees seeming to add less wax when drawing out the foundation, thus making more use of what was given them.

A considerable discussion took place as to the desirability of opening up the British market for Canadian honey. It was stated that the clover honey from Canada was of a better quality than that from Australia and other foreign countries. The British market does not demand minty honey, hence it is a mistake to send basswood honey there. Nothing but the best clover should be sent to Britain, and many thought that we could not expect to realize over 7 to 8 cents net for it.

Outline of Work during the Extracting Season.—Mr. Newton, of Thamesford, in dealing with this subject, stated that he produces both comb and extracted honey. He selects his best colonies to work for comb honey and the remainder for extracted. He uses queen excluders and full-depth supers. When the first super he puts on is about two-thirds filled, he raises it up and puts an empty one beneath it and on top of the honey-board. Be sure the honey is well ripened before extracting, and have combs capped over before removing from the hive. He recommended being scrupulously clean and tidy while extracting. He renders his cappings each day with a solar wax extractor. At the close of the season he has his extracting combs piled on the hives and cleaned by the bees before being put away. In the discussion following the fact was brought out that the honey obtained from cappings when being rendered into wax by a solar wax extractor would not be colored by the heat if the pan into which it run were shaded; it was also necessary to keep the extractor clean if the honey was not to be colored by sediment or other matter in it. It was contended that it was a loss of time to the bees to give them extracting combs during the day; they should be given in the evening, and they then will have the night to clean them up.

[TO BE CONTINUED.]

GARDEN AND ORCHARD.

Ontario Fruit Growers' Association.

(SPECIALLY REPORTED FOR THE FARMER'S ADVOCATE.)

The thirty-seventh annual meeting of the Ontario Fruit Growers' Association was held in the town of Waterloo on Dec. 15, 16 and 17. This annual meeting might well be designated as the "cold storage, spraying and San Jose scale meeting" of the Association, since it differed from all former gatherings in the absorbing interest centered upon these three subjects. The best means of utilizing and extending the advantages of the first two and limiting the ravages or meeting the threatening dangers of the other, all in the interest of the fruit-grower, were the dominating features of the discussions from the opening to the closing sessions. While the promise and anticipation connected with the two brings hope to the fruit-grower, the serious and threatening danger in the other gives him nothing but fear. But all alike appeal to his best efforts and highest energies in the protection and development of his own interests.

The first subject taken up was the matter of spraying, by Mr. W. M. Orr, Provincial Experimentator. He said during 1897 the experimental spraying of apple trees carried on by the Department of Agriculture of the Province of Ontario was conducted in 29 orchards, situated in 23 counties, covering the Province from Sarnia to Lancaster. Only one solution was used, Bordeaux mixture, according to the following formula: Copper sulphate, 4 pounds; fresh lime, 4 pounds; water, 40 gallons. To this in every case was added four ounces of Paris green. The results were highly satisfactory, in some cases the full 100 per cent. of clean fruit being obtained, the trees and their fruit being absolutely perfect. A great deal of interest, he said, was taken by farmers and fruit-growers in the work, the attendance during the season, which almost reached the 3,000 mark, being 60 per cent. greater than last year, while the inquiries by mail were ten times as great. As a result of his experiments Mr. Orr gave a number of examples. One orchard of Talman Sweets gave 92 per cent. of clean fruit on the sprayed trees and only 2 per cent. on the unsprayed ones. An orchard of Snow apples sprayed gave 100 per cent. clean fruit, against 5 per cent. unsprayed; Northern Spys, 80 per cent. sprayed and a total absence of marketable fruit on the unsprayed trees. With this excellent showing Mr. Orr said the cost of his experiment amounted to only two cents per tree.

In the discussion which followed this address Dr. Fletcher advocated winter spraying for all kinds of black spot and fungi, and said there was no necessity for spraying for any kind of fruit during the blossoming period. While it was contended by Dr. Saunders and others that Bordeaux mixture was good for grape and other kinds of mildew, it was strongly argued by T. H. Race that it was no good for gooseberry mildew. The Spramotor Company made a display of their excellent apparatus at the convention.

Mr. L. Woolverton gave a very valuable paper on the results of the trial shipments of fruit to Britain during the past year in cold storage. The results, he showed, had not been very profitable, though they had been instructive. What had been learned from them was that fruit should be well cooled before being packed, and that a temperature of 30 to 35 instead of 48 was necessary to keep the fruit in good condition.

It had also been proved that Canadian Crawfords and Bartlett pears are just what the trade wants in England, the latter variety being identical with the favorite English pear, Williams. Regarding packing, Mr. Woolverton said that if it were possible to encourage the establishment of packing companies, managed by experts, to do the packing for export, the difficulty would be overcome. Under the present system, by which each shipper packs his own fruit, it is impossible to get uniformity. Of the tomatoes shipped by Mr. Woolverton, those picked and packed when just half ripe did the best, while the pears did the best that were fully ripe. Another point made was that those cases packed after the fruit had been thoroughly cooled brought 11 shillings, while only 9 shillings could be got for similar cases packed in a warm or uncooled state.

Prof. Robertson followed Mr. Woolverton, dealing with the Government's relations to the cold storage shipments. He started out by assuring the fruit-growers that the Government were determined to spare no pains and no reasonable expense in establishing and perfecting a system of cold storage from the fruit centers to the British markets. He emphasized what Mr. Woolverton had already said, that one of the important things was to get the fruit cooled before it went into the cases or thoroughly cooled in the case before being shipped. If they can get it in good shape the people of Britain will take and eat five times the quantity of Canadian fruit they are now getting. But there must be more care in packing if Canadian apple-growers hope to get their full share of the British market. Prof. Robertson instanced one case where he visited an auction sale of Canadian apples and noticed that a number of well-known buyers stood by and saw lots going off at 16 shillings per barrel without bidding, but as soon as the brand of some favorite or well-known packer was offered they at once bid the lot up to 24 shillings per barrel. In a few years, Prof. Robertson says, fruit

values will be made in Britain the same as the values of grain now. The length of time till then rests with the Canadian packer.

Prof. Robertson also gave a very interesting address on the food values of fruit and the influence of a plentiful fruit diet on the temperament as well as the physical structures.

The Thursday morning session opened with an address by Dr. Saunders on maintaining the fertility of the soil in orchards. He started out by saying that the soil was the fruit-growers' savings bank which he was constantly drawing upon, and if he wished to keep up his credit he must keep up his deposits, as he was constantly drawing upon his capital. This he could best do by applications of barnyard manure at the rate of 15 tons to the acre. He showed that unleached ashes was a most valuable fertilizer, and that about 30 bushels to the acre would be about the proper amount. This, he considered, would add about 75 pounds of potash to the acre, 100 pounds of phosphoric acid and a considerable amount of lime, say two or three hundred pounds. He had found, however, that red clover was perhaps the best fertilizer of all, and had recently sown it at Ottawa with nearly every variety of grain, believing that in a few years he would thus bring the land to a greater state of fertility than by the ordinary method of manuring. He said that clover was richer in nitrogen when green, and should be plowed down in the fall before any of the roots were killed. Clover sown in the spring and plowed under in the fall added as much fertility to the acre as ten tons of manure. In the discussion Dr. Fletcher said that it was a disputed point whether it were better to plow clover down in the fall or leave it as a cover crop to protect the rootlets of the trees during the winter. He admitted that it lost some of its nitrogen by winter-killing.

One afternoon session was given up wholly to the San Jose scale. Mr. W. M. Orr presented his report, giving an account of his investigations during the past summer. Mr. Orr said he had found the scale in many localities from the Niagara district to the Detroit River. The first and worse case he had come across was in the orchard of Mr. Van Horn, near Chatham. The scale was brought there on trees from some nursery in New Jersey. Every case discovered in Essex and Kent was traced to one or two nurseries in New Jersey, and one case in the Niagara district resulted from trees bought from Mr. F. E. Young, of Rochester. Some very bad cases were found in the neighborhood of Kingsville, and from all these points mentioned the pest was spreading in every direction. The only treatment that has been of any effect was to chop out and burn every tree affected. Mr. Orr, with the assistance of the parties owning affected trees, had tried spraying with whale-oil soap, but to little effect. Mr. Orr gave it as his opinion that nothing but cutting out and burning would ever rid the country or any infected district of the pest.

[TO BE CONTINUED.]

Notes from Simcoe (Ont.) Experiment Station.

Apples were almost a total failure here this season, with the exception of the Duchess, which were a fair crop, and of good quality. Of the winter apples, the Snows and Spys were the only ones that bore a few specimens, but what few there were were of poor quality. There was plenty of bloom, but the fruit fell off soon after setting, owing to some sort of blight. The Duchess rarely ever fail to produce a crop any year, and if a market can be found for them they will always prove the most profitable kind, even if sold at a low price, owing to their early and regular bearing, the large crops they produce, and their even size and clean, bright quality. If I were confined to one variety of apple, I would grow the Duchess. Of the fall varieties, my choice would be Alexander, St. Lawrence and Wealthy for profit. Of winter varieties, a very good selection would be Snows, Fallwater, Stark, Blenheim Orange, Spy, King, Baldwin, Greening. The last four should be top-grafted on Tallman Sweet or other hardy stock.

I have quite a variety of pear trees planted, all doing well. Among them are three Russian varieties, Baba, "Bessemianka," and Bergamott. These, with the Flemish Beauty, will make splendid stock on which to graft the tender sorts. They are healthy and vigorous, and seem to have found a congenial climate here.

The Russian cherries, of which I have a large number of varieties planted, are very thrifty, vigorous growers. Two varieties, Osthien and "Dye House," three years planted, bore sufficient fruit this year to enable one to judge of its quality. Both are excellent for canning purposes, with a rich vinous flavor. The Osthien, eaten fresh, is the better of the two, being less acid. I have no doubt, these Russian cherries will prove valuable for northern districts, where the finer and more tender kinds, such as Oxheart, will not succeed.

I fear the Japanese plums will prove too tender for this district, and doubt very much if they will succeed outside the peach belt. However, time will tell. I have been much interested in a plum that fruited for the first time this year. It was one of several varieties sent me by Prof. Craig two years ago last spring. The scions were labeled "Early Botan." But Prof. Craig writes me that he thinks

it is not a true Botan, but something of the type of the Willard. The scions were top-grafted on common wild stock, and bore fruit the second year, having come through the winter without injury. The fruit is smaller than Lombard, with very small pit; pink color when ripe, and covered with a beautiful bloom; the flesh has somewhat the flavor of a peach, juicy, rich, unexcelled by any variety in point of quality. It began to bloom on May 1st, and was ripe on August 10th. This plum, in an early season like last year, would be ripe in July. It is a freestone. However, it has one fault. It is inclined to drop before it is thoroughly ripe. But the value of this variety lies in its high quality and earliness, as it would be in the market before any other variety.

Half an acre of orchard, 20 years planted, is being treated with ashes and ground bone, and red clover plowed in when in blossom. The half acre receives 100 pounds ground bone, 25 bushels hardwood ashes, and as heavy a crop of clover as we are able to turn under with a plow. This experiment is intended to demonstrate how the fertility of a bearing orchard may be kept up cheaply, and if the trees respond well to this course of treatment (and present indication are that they will), then no one should let their fruit trees starve on the score of expense. The bone meal costs about 2 cents per pound, or \$4 per acre; ashes, 7 to 8 cents per bushel, or say \$3.75 per acre (this does not include drawing, of course), and clover seed, 90 cents, or a total of \$8.50 per acre. In ordinary practice this would not need to be repeated every year. If a good heavy crop of clover were turned under, and the ashes were of the best quality, once in two years would do, and an orchard ought to respond fairly well to this treatment. Very few orchards get anything near that amount of fertilizing, and yet are expected to produce large crops of fruit and at the same time grow a crop of grain or roots between the rows. How unreasonable. Most of our orchards are starved. G. C. CASTON, Experimenter.

THE HELPING HAND.

Everybody a Weather Prophet.

JOHN TAYLOR, JR., WATERLOO, ONT.

One of the most serviceable and useful articles about the farm is a good barometer which will foretell nearly all the changes in the weather. There is no reason why we should be without such a useful instrument when we can procure a first-class one at a cost of about 30 cents. Many of the so-called barometers are of little use on account of the poor quality of the chemicals used. If we buy the chemicals ourselves we will be more apt to get a better instrument. Buy the following from a good chemist: One ounce of camphor, one ounce of saltpeter, one ounce of ammonia of salts, and dissolve them in fifteen drams of alcohol. Shake the mixture well and pour in a long, slender bottle, and cork up tightly. Be sure to have the bottle full, so there will be little or no air inside. Hang your barometer on the north side of building, or some place not exposed to the sun, and the following will be your weather indications: Absolute clearness of the liquid means fair weather. Threadlike objects at the top of the bottle indicate high wind. If the liquid become roily it is a sign of rain. Little stars in the liquid mean a hard storm. If downy masses form in the bottom of the bottle it will be cold; the more these masses rise to the top the colder it will become.

POULTRY.

Winter Eggs.

If we are going to obtain winter eggs in paying quantities, we must see that our fowls are properly housed, which means that the house should be warm, clean, and large enough for the flock. It should be so warm that water will freeze but little even during coldest weather. We prefer to do without artificial heat, but would not hesitate to use it during a very cold period rather than allow our birds to stop laying, as they surely will when they become very cold. If you use artificial heat, do not allow the building to get over 45°. We have found from 40° to 45° to be about right when heated artificially. Keep the poultry house just as clean as you keep the cow stable. At least six square feet of floor space should be allowed for every bird. This space will do very well if you keep the flock divided into from fifteen to twenty in each flock, but if you have say fifty in one flock, they should have a building 20x25 ft. for best results. One of the great secrets in obtaining winter eggs in paying quantities is to have the proper birds as to age, health, etc. No late-hatched pullets or old hens will do anything during the winter except eat, and you cannot afford to have any drones in the flock. You can quite easily tell at this time of the year all birds that are likely to lay soon. The old hens will now be pale looking (I take for granted that you have the whole flock in good health) and not well moulted. Get rid of these, as well as the late pullets, at once; they will be small, and quite likely little more than skin, bone, and feathers. Get rid of these also, and keep only those that are in full plumage, are in good plump condition, and are red about the head. We now come to the

PROPER METHOD OF FEEDING.

Have a variety of food on hand, as wheat, buckwheat, barley, oats, corn, turnips, potatoes, mangels, cabbage, cut clover, and meat of some sort—green bones preferred. Every farmer has enough of these kinds of food to make sufficient variety. Feed mostly vegetables in the morning, as cooked potatoes, mixed with crushed oats or some other kind of ground grain; turnips can be used for the potatoes, or the cut clover mixed and steamed with chopped grain. This will be enough variety. Feed this in troughs and only what they will eat up clean. Have the floor covered from six to ten inches with straw. I prefer wheat straw. Into this, after they have had their morning meal, scatter some kind of grain. Put in a few handfuls only and cover it up well with the straw. The object of this is not so much to feed them as to get them to work. It has been clearly proven that a hen that stands about is not a profitable hen. The oftener you can get them to turn over the straw in a day the more eggs you will get. See that each bird goes to roost with its crop well filled with grain every night. If you are feeding meat, cook it first and give them all they will eat. If you are feeding ground green bones, you may give them all they will eat, and the more of this kind of food they get the more eggs they will lay and the less grain they will require. You must feed meat in some shape during winter to take the place of the many worms and insects obtained during summer on a free range. Green bones or meat and vegetables, with very little grain, will produce more eggs in winter at less expense than an all-grain diet, as is fed to too many hens on our farms. Do not neglect to keep grit before the fowls at all times, and see that they have access to a dust bath of road dust or coal ashes.

Waterloo Co.

J. E. MEYER.

VETERINARY.

The Dominion Veterinary Department.

To the Editor FARMER'S ADVOCATE:

SIR,—Your timely remarks re Live Stock at the Experimental Farms, in your issue of November 15th, would convey to a large number of the stockmen and public generally news that was anything but reassuring. The second discovery of tuberculosis at the Experimental Farm, Ottawa, also discloses the fact that as at present conducted either the veterinary branch of the Department of Agriculture is nothing more than a farce, or else it is in the hands of incompetent men. The Minister (Hon. Sydney Fisher), while zealous for the welfare and advancement of farming, cannot reasonably look for improvement in the veterinary branch of it as long as the present head is retained. No reasonable person will, after the recent discovery of tuberculosis at Ottawa, right under the inspector's nose, if that be a sample of his work generally, condemn the British Government for the embargo placed on Canadian cattle. It seems that although a rigid quarantine used to be enforced at Quebec and other points east on cattle entering the country, yet animals entering as settlers' cattle along our Western frontier were allowed in with only a cursory inspection and practically no quarantine. This fact was pointed out to the inspector years ago. His answer was to the effect that the British Government understood or agreed to such a system. However, when the embargo was placed on our cattle and reasons asked by the Canadian Government for so doing, the British Government pointed out this loophole for contagious diseases in the Canadian quarantine system. Why should cattle admitted along our eastern frontier be more liable to have or carry contagious diseases than cattle admitted along the western frontier? Again, the Dominion Veterinarian's statement before the House of Commons Committee is altogether too optimistic. Glanders, according to that gentleman's evidence, is practically extinguished in Canada, yet in 1886 the Provincial Veterinarian of Manitoba shot over forty horses affected with the disease, and even a greater number in 1897, most of the cases being directly traceable to the N. W. T., a district under the Dominion Veterinarian's control.

[NOTE.—Elsewhere in this issue we give a still more glaring case of official laxity, where, within 30 miles of Toronto, the disease is reported to have been in existence for weeks, no less than sixteen animals being reported affected.—EDITOR.]

It is altogether likely that he is as wide of the mark regarding tuberculosis as he evidently is regarding glanders; and what about his knowledge regarding other contagious diseases in animals? Last winter and spring the Department announced a series of examinations to enable veterinarians to qualify for inspectorships under the new regulations regarding exportation, etc., of cattle. Those examinations were held—certainly a step in the right direction: one of civil service reform—but only a few of those competing have yet been informed regarding their standing, whether they have passed or failed. Neither has the public been informed. Was the whole thing a deliberately planned farce? The examinations afforded the chief inspector the opportunity of visiting the West and "the Waldron ranche." Are there no veterinarians in the Dominion House of Commons whose advice on such matters might be taken? If diseases exist among our cattle and horses, eradicate, but don't try to hide them.

Wellington Co., Ont.

A. G. HOPKINS.

Tubercular Infection in Human Beings and in Cattle, and the Duty of Governments in Relation Thereto.

To the Editor FARMER'S ADVOCATE:

SIR,—In recent years one of the greatest medical problems of the age has, with various phases of popular interest and excitement, appeared as an economic problem of public sanitary science. Since Prof. Koch's discovery of the bacillus tuberculosis and that product which has become the great diagnostic agent in tuberculosis, the tuberculin fluid, the control, cure and eradication of this direful disease has been hopefully contemplated. With the further discovery of this disease in cattle measures have been adopted by governments and legislatures, and large sums of money have been spent, mostly with a view to the removal of an assumed source of infection to human beings in the food products of affected animals.

During the last four years I have become familiar with the diagnosis of tuberculosis in the Province of Ontario, Canada, and in New York State, having been for part of this period an inspector of export cattle to the States of Connecticut and Massachusetts. But while discharging this professional duty I have entertained grave doubts as to the practical value of the ultimate result.

Various facts tend to show the unsettledness and uncertainty of public opinion and policy in this relation, and the need of further discussion looking to improved measures. Among these facts the following are of special significance:

1. The State of New York, after spending enormous sums and destroying a great number of cattle, no longer makes compensation or enforces inspection; while at the same time a number of city boards of health refuse to allow the vending of milk from cows not passed as being free of the disease.

2. The Bureau of Animal Industry, U. S. A., demands greater restrictive power over the movement of stock, tubercular infection being one of the chief reasons given.

3. The State of Connecticut, after trying what seemed a perfect system of inspection of imported stock and corresponding testing of home stock, has repealed its quarantine regulations.

4. The Chief Inspection Department of Canada, where the campaign against this insidious microbe is now semi-rampant, makes far-reaching recommendations.

5. Some European countries are now allowing the use of the infected meat, while others require its total destruction.

6. And in New York City measures have been recently initiated for the isolation of pauper consumptives, while the medical and public press abound with articles upon the subject.

To criticize, in the interest of the live-stock industry, governmental measures counselled by highest medical and veterinary authorities, may seem a quixotic procedure, but the views to which, by the observation of the past few years, I have been led, and which I here venture to express, have received significant confirmation, and my hope is that as thus and otherwise voiced, they will receive such consideration as will result in more judicious, general and effective measures.

TUBERCULOSIS IN CATTLE OVERRATED MENACE.

The fact that cattle are infected with tuberculosis has, I believe, been entirely overrated as a menace to humanity, and the extensive destruction of cattle on that ground during recent years is without justification. In this opinion I give full recognition to those fundamental facts concerning the disease which have general acceptance in the medical world; as, for instance, that the bacillus tuberculosis is the exciting cause of the disease; that the tuberculin fluid will invariably demonstrate its presence when properly applied; that the disease is the same in human and bovine subjects, and that hereditary affection or tendency to the disease may be simply a weakened power of resistance to its infective attack, and does not necessarily imply an already infected subject. But in considering preventive measures I do not think that full significance has been attached to the following additional facts, which, though not so generally known, are yet of vital importance: That the tubercular nodules are the resultant inflammatory process of the nature of the patient, an attempt to incyst and isolate the germs that have found their way into the tissue; that these nodules have a greater tendency to colloid degeneration (breaking down) in the human than in the bovine subject, making the disease malignant in the tissues and infective in the atmosphere; that in cattle the tendency is to calcification (impregnation with lime salt), which is permanently incysting and a curative process; and that in infected humanity fully ninety per cent. are cases of primary pulmonary consumption, while the proportion of human mesenteric and hepatic (from the digestive tract) primary infection is but a fraction of one per cent. When in connection with these facts, breathing through the mouth, and the way food is handled in its transference and preparation, are allowed for in calculating "the limit of error" (Poisson's Law) it will, considered statically, almost remove cattle food products from the arena of probable causes of tubercular infection to humanity. Surprising as the results of this enquiry may

seem, the reason will appear when considered physiologically and histologically as well as in the final pathological stages.

On the one side such facts as these challenge attention—the inspiration of air into the lungs laden with minute particles of dust whose size is yet as big as marbles in comparison with that of the infective microbes which use them for aerial transportation, the period of stasis of this air and the clogging of sputa or mucus which catches these germs at each inspiration; also the delicate terminal membrane and neutral medium of entire tract, which gives a highly favorable opportunity for invasion. In opposition to this the digestive tract (through which the food passes) provides continuous passage of ingesta, a series of digestive fluids and opposite media (acid, alkaline, and antiseptic), powerfully protected surfaces, and stronger and more resistant tissue; and so is a less favorable region for infection.

While the absence of lymphatics and blood vessels in the nodules of tuberculosis is, as has been stated, for a time the means of holding the disease in check, it also prevents the carrying to them of curative remedies; so that periodic breaking down and re-infecting is seen in the various symptoms which are too common in the human subject, with the alternating hope and despair as nodular degeneration lingers or culminates. And the cure of tuberculosis is still a scientific quest and only an empirical boast, for the attempts to calcify the nodules by saturating the system with lime salts, or to antiseptics the germs when free in the system by antiseptics (organic or inorganic), climatic changes, and all the thousand and one "sure cures," leave us as yet with a general confession of failure; while our best protection is doubtless the maintenance of the highest standard of general health.

Coming now to the economic question, is it necessary for the public good to destroy all infected cattle, making the compensation for damage a public cost? Such necessity cannot be conceded unless some real advantage to the public health in protection from this disease be gained by such destruction which cannot be gained in any less costly way.

THE GREAT SOURCE OF INFECTION.

It should be known and realized that the great source of this infection is the contacts and associations of family life. The consumptive man or woman marries, with every probability that sooner or later the infection will pass to the wife or husband, or to offspring, through the breathing of a germ-laden atmosphere, after what appears a slight cold, with spitting, etc., dry particles of which, floating in the household atmosphere, find lodgment in the pulmonary tract of some other member of the family. Then the pulmonary invalid travels over the country, using cars, hotels and other public conveniences, and visits among friends without taking the slightest sanitary precautions, though at any moment a cough may break a degenerating nodule in the lungs, the contents of which scattered abroad mean exposure and possible infection to others. I do not want to take the role of alarmist, but it is true that while nature has provided us with considerable protection, under such exposure, and particularly at times of bronchial trouble, our immunity is seriously imperilled. On the other hand, though ordinary cattle are approximately about ten per cent. infected, and thoroughbreds slightly more [NOTE.—The official report of the N. Y. State Tuberculosis Commission states that in 1894, in 21 counties, 2,417 cattle were examined, of which 495 were condemned and slaughtered. Of these, 287 were common cattle.—EDITOR], the food products of cattle are in no wise a menace to humanity as a source of infection, since the ordinary cooking of food sterilizes it, and milk can be sterilized by being subjected to a temperature of 160° F., which will not materially affect its digestibility. It is at once a reasonable, righteous and economic demand that governmental interference in this relation should proceed upon a due recognition of where the peril really lies, and should be practically adapted to secure the end at which it aims. The present policy is manifestly straining at a gnat of infective possibility in food products from cattle while inhaling a camel of demonstrable microbic infection from human sources.

The questions arise:—Is it possible after positive diagnosis to enforce isolation laws on human beings and maintain the same for years with strict quarantine boundaries? Is it possible to so educate the people that the fondest ties of life will be renounced through a sense of duty to others, living or as yet unborn? Will a mother give up her newborn babe to be brought up apart from her death-dealing caresses?

But certainly the destruction of ten per cent. of the stock of the country to remove the very questionable risk of infection from their food products—a risk which can be otherwise adequately guarded against—with no certainty that herds will not be re-infected from human sources, is a wasteful and irrational policy which cannot too soon be stopped. Farmers and taxpayers alike object to the costly, futile and annoying measure, and in view of what has been presented I think they are justified in so doing.

It may seem from all this that I am opposed to the great work of modern sanitary science. Far from it. There is no more important and eminent-needed work to-day; and I hope that the time is

not far distant when in every county town and village there will be a competent health officer of undoubted medical and veterinary ability, able to cope with primary sources of infection, whether in the feeding of the uncooked offal of cattle to swine or the unrestricted intercourse with others of infected human beings, and with energy and courage faithfully to perform his duties.

PROFITATING THE MICROBIC BOGEY.

Theoretically there is always a very high standard to aim at, but practically the ideals must be translated under the conditions of current possibility. Public measures should be inaugurated, not in paroxysms of inconsiderate and short-sighted zeal, but with due regard to all that they involve. Measures of uncalled for severity and doubtful effect have brought sanitary science into disrepute. It is time that a better and broader application of this science were attempted, for the public is sick of the microbe bogey and averse to the "burnt offerings" by which its propitiation is sought.

This inspection of cattle is, however, a serious matter for other reasons than those which have been considered. Though tuberculosis does not (for pathological and obvious reasons) kill off an appreciable number of cattle, and though cooking and sterilizing food products will protect man, yet it is not well that infected cattle be propagated. There are also other infectious diseases among cattle which require attention. A general policy of inspection and control could be instituted which would have the good-will of the farming community, or, at least, would not incur its overwhelming opposition.

A well-organized

NATIONAL SANITARY DEPARTMENT,

made up from the veterinary and medical professions, is a prime necessity. This should come to effect in a uniform system of inspection and control on a national scale, ramifying through subdivisions of territory and subordinate agencies through the entire country; with inhibitions of trading in or breeding from infected stock; tags and certificates for healthy animals; quarantine and a three months' optional feeding limit for the suspected, the meat of which may be used after examination; the enforced sterilization of all milk, and the proper disposal of all offal. There should also be examination of the agents of this system, and persons with tubercular troubles should be rigidly excluded.

By such a system, inspection and control might be made general and effective and yet involve no indemnities and impose no special hardships on the farmer.

This means, of course, a complete modification of the contagious diseases laws as relating to this disease, the provisions of which tend to encourage stock-owners to remain in ignorance of the true condition of their property, since knowledge involves responsibility and entails loss.

The Bureau of Animal Industry, U. S. A., and the Chief Inspection Department of Canada, have issued useful bulletins on this subject; and yet it is scarcely possible to take them seriously in some of their recommendations. For instance, the advising that every farmer test his own stock implies a strange ignoring of universal traits of human nature. The tendency to believe the best of one's own, even against convicting evidence, affects stock-owners as well as other people. I would like exceedingly well to see old Diogenes holding his lantern in the early morning for a stock-owner who would reject on the evidence of the thermometer his "blooded" animals, or refuse to sell them for breeding purposes if he got the chance. The stock-owner could not certify to nor be held responsible for the results of such testing, being deficient in veterinary science and destitute of authoritative qualification, and the only effect would be a possible hint to dispose of his stock to the best advantage at the earliest opportunity, with the further knowledge that if the testing were recent a re-testing would not expose the fraud.

If, in addition to this rational policy in the governmental inspection and control of diseased cattle, the medical profession could effect a corresponding isolation of infected humanity and prevent the human infection of cattle, a proper return would be made for the services veterinary science has rendered in pointing out and helping to control great scourges which affect men as well as animals, as well as conserving the interests of a great industry which have been ruthlessly sacrificed for the fancied protection of mankind from tuberculosis.

Lewis Co. N. Y. CHAS. A. SANKEY, V. S. (Ont.)

Experimental Farms Now Free from Tuberculosis.

The testing of cattle with tuberculin at the Dominion branch experimental farms has been completed.

The number of animals tested at Nappan, Nova Scotia, which composed the herd early in October when the testing was done, was —. These were all found free from tuberculosis. Since that time 18 animals have been purchased for that farm, all of which have been tested and found to be healthy and sound.

The herd at the branch experimental farm at Brandon, Manitoba, consisting of 20 animals, were tested on Dec. 5th and 6th, and no reaction oc-

curred in any case, showing that they were all free from disease. Of these five had been through the test of 1894, eight were calves of those tested in '94, four were animals introduced since '94, and three were calves of the last mentioned. The animals purchased since 1894 were, we understand, in every case tested before being placed in the stock barn. Twelve steers recently purchased for feeding experiments and kept isolated have also been tested, and one of these reacted; the others are all sound. The suspected animal has been kept separate, and will be at once slaughtered and a post-mortem examination made.

Fifty-one head of cattle have been tested at the Indian Head Farm, N.-W. T., and two of these only have reacted. Instructions have been forwarded to have these killed and a careful post-mortem examination made in each case. All the remaining animals are sound and healthy.

The testing of the herd at Agassiz, British Columbia, has also been completed and all have been found free from tuberculosis. The herd consists of twenty animals.

At the Central Farm at Ottawa the barns have been thoroughly disinfected, and are now occupied by the animals which stood the test without reaction. Twenty-two steers have been bought in the neighborhood of Ottawa for experimental feeding during the winter. These have all been tested with tuberculin and found quite free from disease.

It is thus satisfactory to find that all the Dominion experimental farms start the New Year with a clean sheet, and also that additional stock-feeding experiments are under way.

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. Enquiries must in all cases attach their name and address in full, though not necessarily for publication.]

Veterinary.

Fibroid Tumor.

MR. HENRY HARTLEY, Durham Co., Ont.:—"Will you kindly advise me through your veterinary column concerning a cow? She has a lump on her neck about half way up from her brisket. It has been growing for the last three months, and is now a little larger than a man's fist. It is hard and also very sore when squeezed, otherwise she is well and hearty. What treatment would you advise? Is she fit for beef?"

[The condition arises probably from a blow, and being deep-seated the abscess could not get vent through the skin, and a large amount of fibrous tissue has grown around it. Probably a section of tape passed through the body of the tumor would cause it to be evacuated, as there is no doubt a quantity of pus or matter confined in the substance of the growth. A smart blister would hasten the cure. There is no reason why she should not be used as food, this would not have any injurious effect on the animal, but there is no doubt a cure can be easily effected.]

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

Piles in Young Pigs.

MR. H. BOLLERT, Oxford Co., Ont., writes:—"You can inform 'Reader,' of Compton Co., Quebec, that a little soft soap mixed with swill or milk will stop his pigs from forcing out their bowels. It is best to separate them from the others, and they will soon be right."

"Allow me to congratulate you on the ADVOCATE in general, and the Christmas Number especially. It certainly is a credit to the publishers. I often wonder how farmers can get along without the ADVOCATE as a guide. Your valuable paper is in every issue giving me light on some question or other. I hope the time is not distant when the grand old standby, the FARMER'S ADVOCATE, will be found in every home in the Dominion."

Castration by "Turning and Twisting."

JAS. H. KINSMAN, Perth Co., Ont.:—"I have been a constant reader of your excellent paper for a number of years and consider it the best farm journal I have yet seen. I would be pleased to get, through your columns, some explanation regarding the method of castration referred to in October 15th number, page 430, as "Twisting and Turning the Testicle"? I wish you the compliments of the season and success with your splendid paper."

[The reference made was in connection with the Iowa Experiment Station lamb-feeding test. The lambs were bought in November and were, therefore, well grown, when castration by the knife would have entailed considerable loss. The process employed consists in first reversing the position of the testicle so that the point of attachment of the cord is below, and following that the testicle is twisted until moderate tension is produced. When in this position it is pushed into the upper part of the scrotum and held in place for 36 to 48 hours by means of a string tied firmly below it, taking care it does not pass through the inguinal ring into the body. The operation produces swelling and stiffness, but seldom puts lambs off their

feed. The testicles in the majority of cases nearly disappear when the work is properly done, and this method is entirely effective in producing quiet lambs for feeding. Will some one who has performed this operation kindly explain it a little more fully if they consider our explanation too bare.]

Miscellaneous.

Difficulty in Drying Cows.

IGNORAMUS, Bruce Co., Ont.:—"I have some valuable Holstein grade cows and experience a good deal of difficulty in getting them first dry before calving. I have reduced the rations, with the result only that the cows lose flesh and look miserable. Would you kindly advise me as to the best treatment to pursue?"

[There is considerable difference of opinion as to whether it is wise or profitable to force a cow dry when she is disposed to keep on milking. Many good dairymen claim they will do better work and prove more profitable in the long run if kept milking continuously. Our own experience leads us to favor drying a cow off from six weeks to two months before she is due to calve again, as we think the rest recruits her strength and has a good effect in nourishing her offspring. Withholding succulent food and grain has generally the effect of reducing the flow of milk, so that a cow can be dried off safely in ten to twelve days by milking her once a day, and later once in two or three days, milking out clean each time. If a cow persists in milking freely, refusing to dry off, we would feed her well and milk her up to calving, testing the milk occasionally by heating it in a pan on the stove, when, if it curdles, it is unfit for use in the family, but may safely be fed to pigs, mixed with other swill.]

Capacity of Silo—Concrete Wall—Oil Cake for Pigs—Horses Eating Earth.

FRED FEASBY, Ontario Co., Ont.:—"1. I would like to know through your valuable paper how many tons of ensilage a round silo nine feet by thirty would hold? 2. What would it cost to build a cement wall under a building fifty-three by sixty feet; eight feet high? 3. Has any of your readers had any experience in feeding oil cake to young pigs, and what quantity to each pig? 4. What causes horses to eat earth in winter? Mine will lick it up every chance they get."

[1. About 45 tons. 2. Such a wall would require about 58 barrels of Queenston cement, and four men would build it in nine days after the stone, gravel and sand were hauled close at hand. 3. Oil cake is not looked upon as a particularly suitable food for pork-making, but for young, growing pigs it would, no doubt, promote rapid growth fed along with corn or barley meal and roots. It should not exceed one-fifth of the grain ration. 4. Horses eat earth in winter because their system craves earthy or mineral matter, which is lacking in their food. We would suggest that wood ashes be mixed with salt, half of each, and kept constantly before them.]

Why Don't the Butter Come?

ESME, Ontario Co., Ont.:—"I am in trouble over my buttermaking, and I come to you for help. I am a beginner, having made butter for the first time in June last. Up till a week ago it was very good indeed; but at last churning and to-day something went wrong and no butter came. I shall give you an account of how I do, and perhaps you will assist me. We have two cows—a Holstein and a Jersey. They are fed corn with the ears on (cut), oat and wheat straw and hay (cut and whole), oat sheaves (cut), and bran. All the cut food is given mixed up together. I use shallow pans for setting, and when I skim off the cream I put it in a new creamer in the cellar (which is a splendid one), thus keeping the cream sweet till the day before churning. This was all right during summer, as it ripened in twenty-four hours then. Having failed to get butter once before, I was determined to succeed this week, and on Monday made a starter of skim milk, keeping it as nearly as possible at 90°. It was thick and sour on Wednesday morning, when I broke it up fine and added it to my cream (stirring it in well), which was kept in a warm place, tightly covered, all Wednesday. As it was not very ripe this morning (Thursday) I delayed churning till 11.30, when the cream seemed right. The temperature was 68°, and I churned and churned, but got no butter. There were not even particles of butter to be seen—only a rich froth. This happened once before, but the butter grains came a little, just about the size of clover seed, and it was very difficult to work and pack. This week, however, there is not the satisfaction of one grain. I kept on churning and hoping, and at last gave it up in despair, and decided to ask your advice. Why did the butter not come? Was the cream ripened too quickly? What do you think of the starter used? I enquired of a neighbor of 20 years' experience as to the cause, but she "didn't know." She has had the same trouble too. She puts into her next week's cream some buttermilk from last churning, and allows it to ripen all the week, keeping her cream crock in her kitchen for heat. Now, I have read that cream should be kept sweet till twenty-four hours before churning, at a temperature of about 50°; so what am I to believe? My neighbor has hers ripening right along, but has had the same trouble as I. To-day I added a quart of water, with a little salt in it, to coax the butter, but in vain. If I knew the cause I

could remedy this, for I hate to be beaten, especially after having been successful all these months. Will you kindly advise me what to do, and you will confer a great favor on one who is anxious to get on?"

[We believe that the difficulty the lady has experienced is due to one or more of the following causes: 1. Churning temperature too low—indicated by the frothing. 2. Cream too sweet—indicated by the results of previous churning, when butter came to size of very small round and smooth granules. 3. Ripening temperature too low, and not continued long enough. Would recommend (in this case): 1. To churn at 70° F., or over if necessary—thermometers vary. 2. To heat the cream to ripening temperature by setting the can containing the cream into hot water (90-100° F.), and stir it until it reaches about 70-75° F., and ripen at this temperature. Cream at 50° F. would stand in a "warm place" (as the cream in question does) for twenty-four hours before reaching 70° F. "Circumstances alter cases." You say you read and are told that cream should not be ripened longer than twenty-four hours. That may, as a general principle, be right, though we doubt it. In winter and in farm dairies we would ripen forty-eight hours on an average, using a little good starter. Much skim-milk starter thins the cream unduly and aggravates the trouble we are considering. Keep the cream as thick as possible. Skim closely from the pans. A little salt will help to gather the butter when it is coming, but it should be added dry and not "in a quart of water." The water thins the cream, and prevents the butter gathering or packing together. The feed of these cows is all right, though some succulent fodder would be an advantage. We presume they get plenty of salt—salt in the cow is better than salt in the churn. If these two cows are strippers, there will be more difficulty than if they are comparatively fresh in milk, but we believe that any cream will churn if rightly handled.]

F. J. SLEIGHTHOLM, Supt.

Western Ontario Dairy School.]

The Yield of Milk Fat.

To the Editor FARMER'S ADVOCATE:

SIR,—In reply to the further query of "Ignorant" re "Milk Yield and Butter-fat" in your excellent and artistic Christmas Number, I would say that the conditions he refers to are not usual. Some cows are of an excitable nature, and during a test the percentage of fat will vary a good deal. Under special conditions and with certain cows it is possible to have the results alluded to, but it is not usual. At the Industrial Exhibition tests I have seen the percentage of fat vary a great deal with some few cases, but as a rule such cows do not give so good an account of themselves as they would do in their own stables. H. H. DEAN.

Spring Wheat for Seed.

ISAAC BOSWICK, Kent Co., Ont.:—"Can you inform me where I can get spring wheat for seed, and what is the best variety?"

[Harrison's Bearded has made the best all-round record in the comparative test of forty-five varieties on the experimental plots at the Agricultural College Farm, Guelph, in the list of varieties that have been grown there, and also in the co-operative test by members of the Experimental Union for eight years. Mr. J. Fred Davidson, box 903, Peterboro, Ont., we notice offers this wheat for sale in the present issue of the FARMER'S ADVOCATE.]

Devonshire Clotted Cream.

JOHN NOBLE, Dundas Co., Ont.:—"Please give me a receipt for making Devonshire clotted cream, and oblige?"

[See Feb. 15th, 1896, issue, page 71.]

MARKETS.

Toronto Markets.

This being the advent of Christmas Day, very little trade was doing. Receipts were small, and the cattle on hand were not easily disposed of; only five loads of fresh cattle.

Export cattle—There were a few head on view; prices ruled firm, at from 34c to 4c per lb. There is an enquiry for choice but.

Butchers' cattle—Very few of the best kind on offer, but all sold readily; choice cattle sold for local use at 4c per lb.; common to medium, old for 2 1/2c to 3c per lb.; one load of six cows, 1,075 lbs average, sold at \$3.10 per cwt; one load of 10 fairly good cattle sold at \$33.50 each, weighing 1,175 lbs average.

Stocks—Buyers from Buffalo report trade dull; two loads of good feeders weighing 850 to 900 lbs each sold at \$3.20 to \$3.40 per cwt; these were taken early in the week.

Sheep and lambs—Export sheep sold down a trifle from my last quotation; prices ruled from 3c to 3 1/2c per lb; butchers' sheep are quiet at \$3 to \$3.50 per head.

Lambs are firm and steady in price, at from \$4 to \$4.50 per cwt.; in a few cases \$4.60 was paid.

Cattle—Prices hold firm for quality, \$6 to \$8 per head; a slight increase in the quantity offered; demand fairly good.

Milk cows—The demand continues good; choice cows wanted and bought on sight, \$25 to \$50; a splendid specimen of a dairy cow sold for \$60, this was paid by a dealer.

Hogs—Offerings were fairly liberal, all on offer sold; 1,600 on sale, choice selections are firm, at 4 1/2c per lb; the light hogs are now quoted at 4 1/2c to 4 3/4c per lb. There are too many of the light kind on offer; it appears as if feeders were afraid to force them for fear of being too fat, and on the other hand stint them to leanness.

Grain market—The receipts of grain were heavy; the market was busy and active, the offering of wheat large, prices scarcely steady; 2,000 bushels selling at 86c for white; 5,000 bushels of red at 85 1/2c per bushel.

Barley—Firm in tone; better demand, at 35c per bushel; 800 bushels on offer.

Oats—Firm; 500 bushels selling at 26 1/2c to 27c per bushel.

Hay—Steady; 20 loads on offer at \$7.50 to \$8 per ton.

Straw—Scarce; 5 loads only, at \$7.50 to \$7.75.

Dressed hogs—The receipts of dressed hogs on the St. Lawrence market were liberal; local dealers quote \$6.90 for choice weights of 90 to 150 lbs.

Toronto, Dec. 24th.

Drumtochy was not observant in the matter of health, but they had grown sensitive about Dr. MacLure, and remarked in the kirkyard all summer that he was failing.

"He wes aye spare," said Hillocks, "an' he's been sair twisted for the laist twenty year, but a' never mind him bood till the year. An' he's gaein' intae sma' buke (bulk), an' a' dinna like that, neeburs."

"The Glen wudna dae weel without Weelum MacLure, an' he's no as young as he wes. Man, Drumsheugh, ye might wile him aff tae the saut water atween the neeps and the halst. He's been workin' forty year for a holiday, an' it's about due."

Drumsheugh was full of tack, and met MacLure quite by accident on the road.

"Saunders 'll no need me till the shearing begins," he explained tae the doctor, "an' a'm gaein' tae Broochy for a turn o' the hot baths; they're fine for the rheumatics."

"Will ye no come wi' me for auld lang syne? it's lonesome for a solitary man, an' it wud dae ye gude."

"Na, na, Drumsheugh," said MacLure, who understood perfectly, "a've dune a' thae years without a break, an' a'm laith (unwilling) tae be takin' holidays at the tail end."

"A' no be many months wi' ye a' thae years together, an' a'm wantin' tae spend a' the time a' hev in the Glen. Ye see yersel that a' l'gane be gettin' ma lang rest, an' a' ll no deny that a'm wearyin' for it."

As autumn passed into winter, the Glen noticed that the doctor's hair had turned grey, and that his manner had lost all its roughness. A feeling of secret gratitude filled their hearts, and they united in a conspiracy of attention. Annie Mitchell knitted a huge comforter in red and white, which the doctor wore in misery for one whole day, out of respect for Annie, and then hung in his sitting-room as a wall ornament. Hillocks used to intercept him with hot drinks, and one drifting day compelled him to shelter till the storm abated. Flora Campbell brought a wonderful compound of honey and whisky, much tasted in Auchindarroch, for his cough, and the mother of young Burnbrae filled his cupboard with black jam, as a healing measure. Jamie Soutar seemed to have an endless series of jobs in the doctor's direction, and looked in "just tae rest himself" in the kitchen.

MacLure had been slowly taking in the situation, and at last he unburdened himself one night to Jamie.

"What ails the fook, think ye? for they're aye lecturin' me no tae tak care o' the weel and tae wrap massel up, an' there's no a weak but they're sendin' bit presents tae the hoose, till a'm fair ashamed."

"Oo, a' ll explain that in a meenut," answered Jamie, "for a' ken the Glen weel. Ye see they're just tryin' the Scripture plan o' heapin' coals o' fire on yir head."

"Here ye've been neglectin' the fook in seekness an' lettin' them dee afore their freends' eyes without a fecht, an' frichtenin' the bairns—no, a'm no duns—and scourgin' us wi' fees, and livin' yersel on the fat o' the land."

"Ye've been carryin' on this trade ever sin yir father dee'd, and the Glen didna notis. But ma word, they've found ye out at laist, an' they're ga'in' tae mak ye suffer fo' a' yir ill usage. Div ye understand noo?" said Jamie, savagely.

For a while MacLure was silent, and then he only said:

"It's a little a' did for the pair bodies; but ye hev a gude hert, Jamie, a real gude hert."

It was a bitter December Sabbath, and the fathers were settlin' the affairs of the parish ankle deep in snow, when MacLure's old house-keeper told Drumsheugh that the doctor was not able to rise, and wished to see him in the afternoon.

"Ay, ay," said Hillocks, shaking his head, and that day Drumsheugh omitted four pews with the laird, while Jamie was so vicious on the way home that none could endure him.

Janet had lit a fire in the unused grate, and hung a plaid by the window to break the power of the cruel north wind, but the bare room with its half-a-dozen bits of furniture and a worn strip of carpet, and the outlook upon the snow drifted up to the second pane of the window, and the black fir laden with their icy burden, sent a chill to Drumsheugh's heart.

The doctor had weakened sadly, and could hardly lift his head, but his face lit up at the sight of his visitor, and the big hand, which was now quite reddened in its whiteness, came out from the bed-clothes with the old warm grip.

"Come in by, man, and sit doon; it's an awfu' dae tae bring ye sae far, but a' kent ye wudna grudge the traivel."

"A' wosna sure till last night, an' then a' felt it wudna be lang, an' a' took a' wearyin' this mornin' tae see ye."

"We've been friends sin' we were laddies at the auld schule in the firs, an' a' wud like ye tae be wi' me at the end. Ye 'll stay the night, Patrick, for auld lang syne."

Drumsheugh was much shaken, and the sound of the Christian name, which he had not heard since his mother's death, gave him a "grue" (shiver), as if one had spoken from the other world.

"It's maist awfu' tae hear ye speakin' about deein', Weelum; a' canna bear it. We 'll hae the Muirtown doctor up, an' ye 'll be aboot again in nae time."

"Ye havna ony sair tribble; ye're juist trachled wi' hard wark an' needin' a rest. Dinna say ye're gaein' tae leave us, Weelum; we canna dae without ye in Drumtochy," and Drumsheugh looked wistfully for some word of hope.

"Na, na, Patrick, naethin' can be dune, an' it's over late tae send for ony doctor. There's a knock that canna be mistaen, an' a' heard it last night. A've focht deith for ither fook maist than forty year, but ma ain time hes come at laist."

"A've nae tribble worth mentionin'—a bit titch o' bronchitis—an' a've had a graund constitution; but a'm fair worn out, Patrick; that's ma complaint, an' it's past curin'."

Drumsheugh went over to the fireplace, and for a while did nothing but break up the smothering peats, whose smoke powerfully affected his nose and eyes.

"When ye're ready, Patrick, there's twa or three little trokes a' wud like ye tae look after, an' a' ll tell ye aboot them as lang's ma head's clear."

"A' didna keep buiks, as ye ken, for a' aye hed a guid memory, so naeboddy 'll be harried for money after ma deith and ye 'll hae nae accounts tae collect."

"But the fook are honest in Drumtochy, and they 'll be offerin' ye siller, an' a' ll gie ye ma mind aboot it. Gin it be a pair body, tell her tae keep it and get a bit plaidie wi' the money, and she 'll maybe think o' her auld doctor at a time. Gin it be a bion (well-to-do) man, tak half of what he offers, for a Drumtochy man wud scorn to be mean in sic circumstances; and if onybody needs a doctor an' canna pay for him, see he's no left tae dee when a'm oot o' the road."

"Nae fear o' that as lang as a'm livin', Weelum; that's hundred's still tae the fore, ye ken, an' a' ll tak care it's weel spent."

"Yon wes the best job ye ever did thegither, an' dookin' Saunders; ye 'll no forget that night, Weelum—a gleam came into the doctor's eyes—"tae say naethin' o' the Highlan' fling."

The remembrance of that great victory came upon Drumsheugh, and tried his fortune.

"What 'll become o' us when ye're no here tae gie a hand in time o' need? we'll tak ill wi' a stranger that disna ken ane o' our frae anither."

Les Frais de la Guerre.

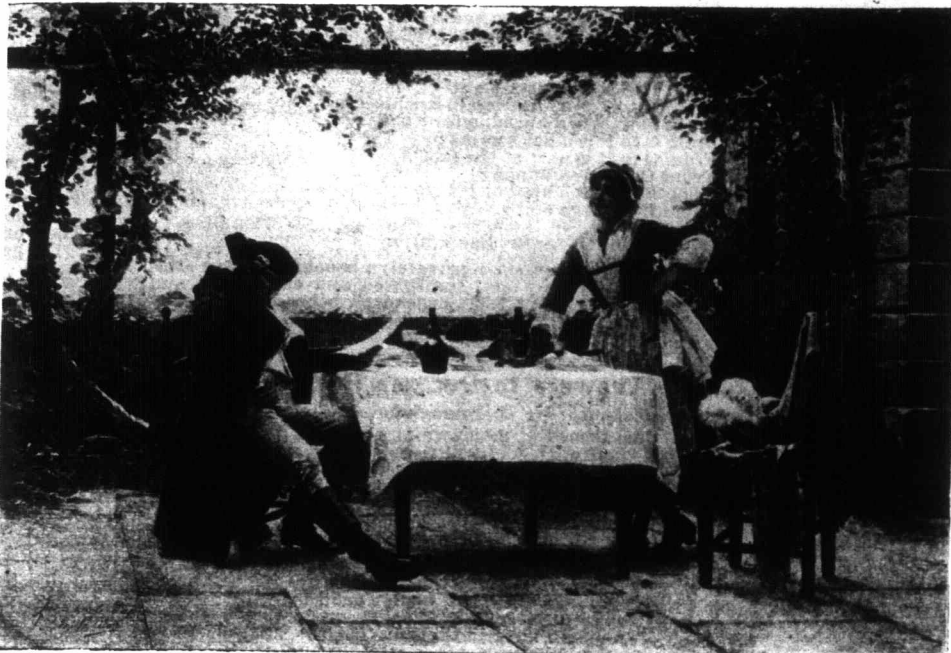
"The expenses of the war" appear to be heavy, if we may judge from the gentleman's expression. The pretty waitress looks very happy, but then she is on the winning side. There is evidently a lady in the case—see the plumed hat on the chair. Can it be an elopement? If so, it has not brought unalloyed bliss—elopements very seldom do. Certainly no pleasanter spot could have been chosen for a wedding breakfast, and really at such a time the happy man ought to be able to spend a little money with a good grace. But possibly he may be a grumpy old bachelor after all. If so, we can forgive him his decidedly doleful look.

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

It is December 31st, 1897, and midnight, sable-winged, is brooding over all the sleeping world. As that darkest hour that precedes the dawn advances I awake from slumber, and as I lie musing, the darkness grows less dense as the gray dawn stealing upon us calls earth to life once more. My half-sleeping senses awake to the fact that not only another new day but also a new year has been ushered in in the stillness of the night.

A New Year! Why, that is a proof that even Solomon, far famed sage as he was, did not know everything, for he said, "There's nothing new under the sun." What a flagrant blunder for a wise man to make! Now, you need not try to defend him by saying that this is the very same little chap who some three years ago broke in upon an old man's midnight reverie. Not a bit of it. That fair child whom we called 1895 now fills a flower-decked grave in the cemetery of the past; and we have here another guest—fair, radiant, new, and our very, very own. How rich we are!



LES FRAIS DE LA GUERRE.

And what shall we do with this youthful visitor, one of whose hands is filled with good gifts for us, while the other is empty? We are all ready to accept of his bounty—shall we ungratefully allow him to depart from us empty-handed? No, it is ours to fill that other hand with good deeds, kind words and duties done, so that when our now young and smiling '98 occupies his allotted space beside his many brothers, it may not be a mockery to wreath the little mound with flowers.

What changes have taken place in that short space of three years! The buoyant youths and maidens whose feet were then planted, low-down, perhaps, but firmly, on the ladder of success have since scaled several rounds, and now bid fair soon to reach an enviable position thereon. Even the chubby-faced little tots whose ambition then soared no higher than well-filled Christmas stockings or similar good things have grown graver, the babyish roundness has given place to soft, sweet thoughtfulness of expression as if the owners had already begun to understand that life is a serious game—not merely one of chance—and were preparing to play it skillfully and well.

Some of my boys and girls have formed partnerships that seem to leave no place for a poor old uncle; while others have wandered far from sight but still not beyond the loving reach of memory, which, ignoring alike time and distance, penetrates everywhere. The places thus vacated are filled with other happy faces which banish melancholy by their very joyousness, but we have room for many more, and I hope the New Year may greatly widen our pleasant circle.

List to the parting words of the good old year:

I am fading from you,
But one draweth near
Called the Angel-guardian
Of the coming year.

[TO BE CONTINUED.]

For we work together,
He and I are one;
Let him end and perfect
All I leave undone.

I gave Health and Leisure,
Skill to dream and plan;
Let him make them nobler—
Work for God and man.

May you hold this Angel
Dearer than the last—
So I bless his Future
While he crowns my Past.

That the Angel of the New Year may guard my dear ones in all their ways is the heartfelt wish of
Your loving—UNCLE TOM.

I am pleased to note an increased interest in our Puzzle Department, but wish to have a larger list of solvers, and to induce more to enter the ranks I offer the following prizes:

For most and best answers to puzzles in January, February, and March: 1st, \$1.50; 2nd, \$1.00; 3rd, 75c.

For best original puzzles during the same period: 1st, \$1.00; 2nd, 75c.; 3rd, 50c.

Prizes for answering puzzles will be awarded according to the percentage of answerable puzzles, so that those who contribute puzzles have an equal chance, although the answers to their own puzzles will not be counted. Now, let each boy and girl try to bring a new cousin, and see what a jolly time we'll have; and don't forget the Gem Contest, which will soon come to a close.
U. T.

THE CHILDREN'S CORNER.

After Christmas.

Two weeks after Christmas Old Santa Claus said:
"To-night, when the children are safely in bed,
I'll harness my reindeer and slyly steal out
To take one more look at the gifts strewn about;
The presents I carried this year were the best,
And Christmas trees never were more gaily dressed.

"I'll go to the Brown's where there's six little boys;
I'm fond of those youngsters and gave lots of toys;
Those drums that I left there were handsome and strong,
Much pleasure they'll furnish through all the year long.
The boys, when they wrote, asked for things that made noise;
Their parents don't like it—but boys will be boys."

Before I can tell it, for deer can run fast,
Good Santa stood in the Brown's nursery at last;
It makes one feel sorry to say what a sight
His old eyes beheld as he gazed there that night.
The playthings were there that belonged to the tribe,
But as for condition, whose pen can describe!

A horse with its tail off, a dog without head,
A wagon-wheel tied to the wagon with thread;
A trumpet of tin that would never more about;
A beautiful spinning-top—with the peg out.
The drums—it was awful! each one of the six
Was riddled in holes by a dozen drumsticks.

There's no use denying that Santa felt bad,
He stood there and looked disappointed and sad:
"These children are naughty and careless," he said,
"Next year I shall not"—here he nodded

'Twas plain that some punishment great was in store—
Could Santa Claus mean he would go there no more!

Next door Santa went, where lived three tiny girls,
All sweet little maidens with soft golden curls,
He said: "They're not boys with such rough, careless ways,
For girls can be happy in quieter plays;
Their tea sets and dolls won't be scattered all 'round,
They've taken good care of them—that I'll be bound."

The shock he received was more cruel, for there
A doll with both arms off lay under a chair;
Another one, eyeless, and hair all pulled out;
Reposed in a bed with sheet tucked about;
The tea sets—at sight of them Santa Claus said:
"I feel very sick—I'll go home and to bed."

It makes one feel anxious to think of next year,—
There are some more cases just like these, I fear;
A note might be sent to explain children's plays
(Most likely Old Santa forgets childish days)
And tell him that toys wrecked and broken but rise
And take on new value in little folks' eyes.

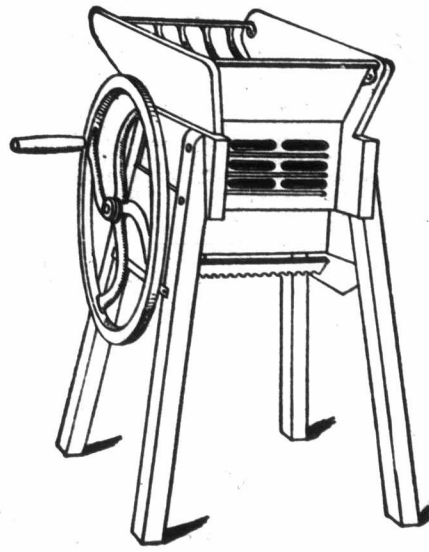
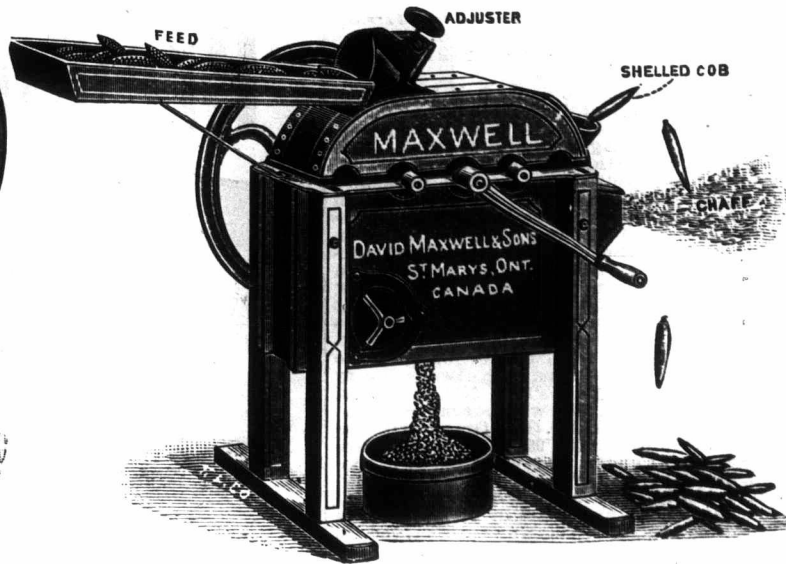
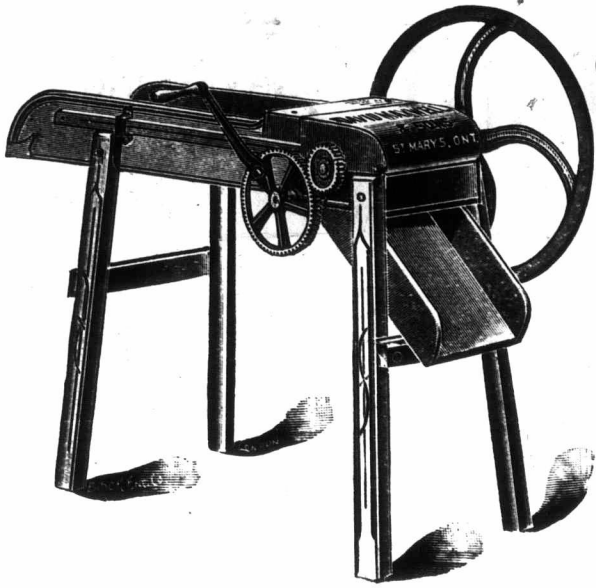
The doll without eyes was a hospital case,
'Twas such fun to doctor and bind up its face.
That one without arms was from Barum's great show,
Two pins let you see it—'twas born so, you know;
The tea set was ruined—that thing I'll admit,
But dolls do not mind broken dishes one bit.

Those drums—'twas a pity—it can't be denied—
The boys longed to see all the noises inside;
They suffered to find they were hollow, no doubt,
We all pay big prices that thing to find out;
So Santa, don't plan any vengeance next year,
For toys, worn and broken, are none the less dear.

Something New.

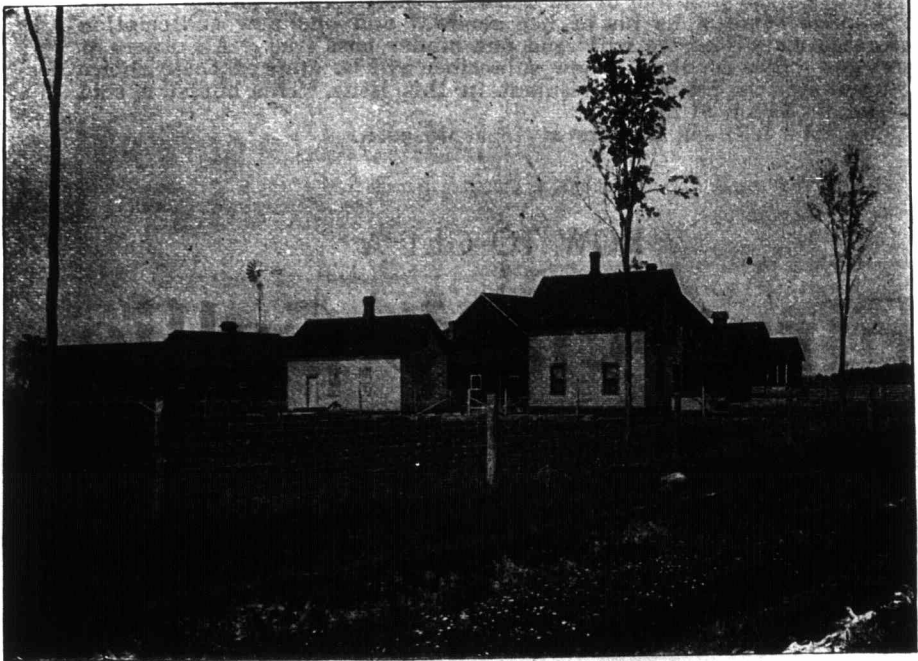
(Continued from page 560.)

Tableland was a much more cheerful place than Umbrellaland. Not only were there tables laden with every kind of eatables, but with toys and books of every description. There were tea-tables and work-tables and card-tables. On the supper-table there was roast turkey and plum-pudding and mince pies, and everything that heart could desire.



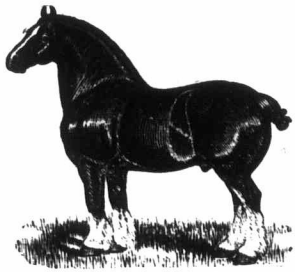
David Maxwell & Sons Manufacturers
St. Mary's, Ontario, Canada,

High-Grade Farm Implements:
Binders, Reapers, Mowers, Hay Rakes, Hay Loaders, Hay Tedders, Disk Harrows, Scufflers, Turnip Sowers, Turnip Slicers and Pulpers, Cider Mills, Hand Straw and Corn Cutters, Lawn Mowers, Churns, Wheelbarrows, and Corn Shellers, Iron Jacks, Riding Plows, etc. Agents wanted in all unoccupied territory.
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From the substantial appearance of this fence you may think it cost a lot of money; but the fact is, the fence is very cheap—cheaper than any other kind of good fence. Write for descriptive illustrated advertising matter to The Page Wire Fence Co., Limited, Walkerville, or to The Rathbun Co., Winnipeg, Man., agents for Northwest.

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 stallions—Clydesdale, Standard-bred, Thoroughbred.

GRAHAM BROS.,
Claremont, Ontario.
25 miles east of Toronto, on C. P. R. 4-11-0m

Isaleigh Grange Stock Farm, DANVILLE, QUEBEC.

Ayrshire and Guernsey Cattle, Imp. Yorkshire Swine AND Shropshire Sheep.



Ayrshire herd headed by the noted bull, Matchless 7569; sire Imp. Glencairn, dan Nellie Osborne. We are offering a choice lot of young stock, of both sexes, in both Ayrshire and Guernsey, at very low figures. Also bargains in sheep and pigs for the next month.



Particulars furnished on application to—
J. N. GREENSHIELDS, Prop. 9 y-om T. D. M'CALLUM, Mgr.

YOUR BUSINESS
is to make the most out of your ground with the least expense. The **PLANET JR. Hill Dropping Seeder, Single Wheel Hoe, Cultivator, Rake and Plow** is as necessary to your complete success as sunshine and rain. From the dropping of the seed to the finishing touch of cultivation this marvellous implement does the work better, quicker and easier than any six men you ever hired. There are many other Planet Jr. tools covering every farming need—there is an illustrated book that tells you all about them in an interesting way. It is really worth a price, but this year it's free.
S. L. ALLEN & CO.,
1107 Market Street, Philadelphia, Pa.

GOSSIP.

HON. T. BALLANTYNE & SON'S AYRSHIRES.
Adjoining the city of Stratford, in the midst of as choice an agricultural section as is to be found in Ontario, is to be found a stock farm of some 200 fertile, well-kept acres, the property of Hon. Thos. Ballantyne & Son, which in appointment is equalled by few that we have yet visited. It is the home of a strictly up-to-date herd of Ayrshire cattle, numbering some 30 odd head. In 1892 Mr. Ballantyne made an importation of some five cows and a bull from Scotland; subsequent importations of sires have been made. The present stock bull, Craigielea of Auchinrain (Imp.) 3302, by Sir Thomas of Auchinrain 2780, and out of Craig of Auchinrain, was imported from his breeder, Robert Wallace, Auchinrain, Scotland. His first crop of calves are now arriving, and of them Mr. Ballantyne speaks in the highest term of satisfaction, possessing as they do uniformity in conformation, color, etc., and it is evident that in his purchase Mr. Ballantyne has made no mistake. He possesses quality and vigor, with a clean-out form possessed by few. In the showing last fall, at the Toronto Industrial, in a very strong competition, he won the highest honors. Four young bulls fit for service are all the result from a long string held in the early part of the fall. Earl of Niedpath 2240, by Royal Chief 2nd 1716, and out of Bessie of Noidpath, is an attractive, up-to-date, promising fellow, of good color and constitution. Sir Louis 2238, by Royal Chief 2nd, and out of imported Strivish Kirsty 2034, is true to type. Sir Oliver 2341 by Beauty's style of Auchinrain, and out of Denty 7th of Auchinrain, is looked forward to as ranking among the best, as he probably possesses as much quality as any animal on the farm, having a glossy white skin dotted over with brown spots.

In the importation of '92, five in-calf heifers came through in good form, and are still to be found in the herd, and are white-faced variety of Auchinrain. Beauty's style of Auchinrain, producer of 1st prize bull calf at Toronto this fall; Denty 7th of Auchinrain, Denty 1st of Auchinrain, and Bessie 2nd of Auchinrain. In glancing over their pedigrees one notes at once the strong similarity in their breeding their sire, Craig of Auchinrain 3029, Flecky 2nd of Auchinrain, one of the most noted Ayrshire herds alive. At their first calving a somewhat incomplete record of the young cows was kept, which proved them to be producers of high order; and without a single exception they possess immense, well-balanced, flexible udders, supplied by large, well-formed vessels. Each cow produced four calves, and although much of their progeny remains on the farm, many of the animals have found their way into remote sections of the Dominion, from Nova Scotia to British Columbia, and across the border into Pennsylvania. At the dispersion sale of Mr. Morton, Hamilton, three heifers by the noted Royal Chief, and out of imported dams, were purchased, and are still on the farm, one of which produced the first prize calf, under six months, at Toronto last fall. They too have rendered a good account of themselves. A half dozen yearling heifers descended from imported cows that promise exceptionally well were shown us, possessing an abundance of quality. In the showing the herd have given a grand account of themselves during the two years they were shown: in 1896 winning first on herd as well as their share of individuals; in '97 winning a good share of the prizes in the severest competition, especially so in the younger stock, which captured about everything, the stock bull also winning 1st in his class. "In up-to-date improvements for convenience and comfort of the stock Mr. Ballantyne has spared no time and expense, and visitors to that section may be assured a profitable, well-spent trip by inspecting his stock and buildings."

20 YEARS A SUBSCRIBER TO THE ADVOCATE.
R. T. Sanderson, of Minnesota, in renewing his subscription to the ADVOCATE, informs us that he recently got a Shorthorn bull from J. W. Watts, Salem, Ontario. The bull was brought out with ear of stock shipped by the Breeders' Association, and he adds: "It was through the ADVOCATE I learned of this way of getting the bull brought out from Ontario. I have been a subscriber to the ADVOCATE for the last 20 years."

MILLER & SIBLEY'S Jerseys

BIG COWS HEAVY MILKERS
RICH PEDIGREES
SOUND COWS GREAT BUTTERMAKERS
FULL FOREUDERS
LARGE, WELL-PLACED TEATS.

Championship yearly milk record in Jersey breed for two-year-olds, as well as mature cows, held by this herd.

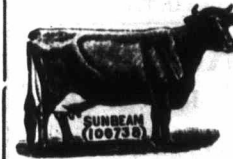
187 First Prizes and Sweepstakes won by this herd at 15 State or greater fairs. First prize herd in 1897 wherever shown, viz.: at New York State Fair; Victorian Era Exposition, Toronto; Western Fair, London, Canada; Central Canada Exposition, Ottawa. In previous years, first prize herd at New York, Pennsylvania, Ohio, West Virginia, Indiana, Illinois, and Missouri State Fairs, and Cotton States Exposition and Live Stock Show of America, etc.

Every animal over one year old has been tuberculin tested. Our animals are not cheap. They are worth what we ask for them. In general, no bull, heifer or cow for less than \$200. If you want our kind of Jersey, come and see our herd. If you can't come, write for what you want. No trades. No Catalogue.

MILLER & SIBLEY,

Special literature sent if this paper is mentioned.
FRANKLIN, Venango Co., Pa.

BRAMPTON JERSEY HERD



Offering high-class A. J. C. C. cows and heifers in calf, and heifer calves; choice young bulls. High-grade cows in calf; and Jerseys.

Maple Hill Holstein-Friesians

SPECIAL OFFERING.
Three bull calves, sired by Sir Pieterje Josephine Mechthilde, whose five nearest female ancestors average over 28 pounds butter per week, and out of the great cows, Cornelia Tensen, Lady Akkrum 2nd, and Inka Rose Pieterje DeKol. If you want a bull to head your herd why not get the best?
11-y-om G. W. CLEMONS, St. George, Ont.

Brookbank Holsteins.

Champion milk and butter herd. Can sell a limited number of bulls and heifers one month old and up; some nice ones from our show herd. First come first served. Quality unsurpassed. Prices right. Write or come and see.
A. & G. PRICE,
Oxford Co., Ont. -om CURRIE'S CROSSING.

SPRING BROOK STOCK FARM.

Choice Tamworth pigs ready to wean, sired by the prize-winning imported boar, Nimrod. Write at once for prices.
A. C. HALLMAN,
New Dundee, Waterloo Co., Ont.

D. J. GIBSON, Bowmanville, Ont.,

Breeder of **HOLSTEINS AND TAMWORTHS**
Now offering a yearling bull fit for service and a number of young Tamworths of both sexes.

FOR SALE AT ONCE.

Two registered Holstein cows in calf, or will exchange for young Shorthorn bulls or heifers. Also Herrison's bearded wheat at \$1.25 per bu.
J FRED DAVIDSON, PETERBORO, ONT.
Box 903.

Consumption Cured.
An old physician, retired from practice, having had placed in his hands by an East India missionary the formula of a simple vegetable remedy for the speedy and permanent cure of Consumption, Bronchitis, Catarrh, Asthma, and all throat and lung affections, also a positive and radical cure for Nervous Debility and all Nervous Complaints, after having tested its wonderful curative powers in thousands of cases, has felt it his duty to make it known to his suffering fellows. Actuated by this motive and a desire to relieve human suffering, I will send free of charge, to all who desire it, this recipe, in German, French or English, with full directions for preparing and using. Sent by mail by addressing with stamp, naming this paper, W. A. NOYES, 330 Powers' Block, Rochester, N. Y.

"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.
ELLIS BROTHERS,
BEDFORD PARK P.O., ONT.
Shipping Station, Toronto. 7-y-om

Guernsey Cattle
CHESTER WHITE AND DUROC-JERSEY PIGS.
At present we are offering
4 Richly-bred Bull Calves
two of which are from imported cows, and pigs of all ages.
WM. BUTLER & SON,
DEREHAM CENTRE, ONT.
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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

WM. WYLIE, 225 Bleury 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

AYRSHIRE BULLS!
Four fit for service, and one very fine bull calf just dropped out of a particularly fine imported cow; also four August calves by our 1st prize bull, Craigleola (imp.); dams from imported cows and by imp. bull.
THOS. BALLANTINE & SON,
Noidpath Stock Farm, STRATFORD, ONT.
Farm adjoins city, main line G. T. R. -om

Choice AYRSHIRES
R. REFORD,
Breeder and Importer.
FOR SALE.—Young cows in calf to imported Napoleon of Auchenbrain. Bull calves, sired by imported Glencairn bred. Write for prices to **JAMES BODEN, Manager,** St. Annes de Bellevue, Que. Farm close to St. Annes Station.

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 Benning; 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. -o

AYRSHIRE CATTLE
The bull **TOM BROWN** and the heifer **White Bloss**, winners of sweepstakes at World's Fair, were bred from this herd. Young stock for sale. Also Leicester Sheep and Berkshire Swine. 5-1-y-o
DAVID BENNING,
Glenhurst Farm, WILLIAMSTOWN, ONT.

AYRSHIRES AND RED TAMWORTH SWINE.
Still a few choice young bulls for sale, and a grand lot of Tamworth boars ready for service. Write us now and secure one.
CALDWELL BROS., Briery Bank Farm, Orchard, Ont

GOSSIP.
In writing to advertisers, mention the "Farmer's Advocate."
JAS. DORRANCE'S "ROSE HILL FARM" BERKSHIRES.

A drive of some two and a half miles from the stirring town of Seaford, over one of the best roads to be found in Ontario, brings us to the well-managed estate of Mr. James Dorrance, Seaford, Ont., the home of as well-selected and well-kept a herd of Berkshire swine as we have found. Mr. Dorrance, in his modest way, laid open the facts to our inquiry, and we were more than pleased when we had looked them and their pedigrees carefully over to see such a worthy, well-selected bunch together, and after glancing over a few of the pedigrees, and accepting as facts what we feel justified in placing before the readers and patrons of the FARMER'S ADVOCATE, we found her full of quality and vigor, having a nice-made head and finely marked. She now holds a high place in Mr. Dorrance's breeding pen, and has lately been bred to that worthy son of Baron Lee 4th, King Lee 411. Queen of Scotts 4660, by Baron Lee 4th, and out of Gipsy 4286 (with pedigree running direct into imported stock), too is a choice animal; in fact good enough to win the 2nd, in strong competition, in Toronto, London and Ottawa in '96. She is also being bred to Golden Bell 5543, by Golden King 5475, and out of Darkness Lady 5532, was imported from James Riley, Thorntown, Ind., early in '96. Her dam has produced a litter of seven pigs from Columbus 2701, April 7th '93, which were exhibited at the Indiana State Fair, winning six firsts and one second prize, amounting to \$85. Five were then exhibited at the World's Fair, Chicago, and won three firsts, two thirds and a fourth premium, amounting to \$510, making \$595 in prizes on one litter of seven, under six months, being about as valuable a record as can be produced in the country. The same importation included Victoria 5th, by Baron Lee 2nd 4455 (winner of 1st at Chicago World's Fair, over six months and under twelve months); dam Victoria 5441, this sow also tracing into a family of showing winners in active competition. Both sows are models of the breed apart from their rich breeding, and are being bred to the stock bear, King Lee 411, by Baron Lee 4th, and out of Sallie Ross 3848. He was bred by J. G. Snell, and purchased on the farm under a year. He is a true representative of that worthy family, possessing that unusual evenness of quality with immense length and depth, and as active as a yearling. He tips the scales at 700. Gladstone 5078, by Victor 3rd 5077, and out of Julia R. 4894, was purchased from his breeder, W. G. Riley, when young, and is being employed on the young King Lee daughters, his dam being a worthy producer. Two young King Lee boars, out of imported Shapely and Royal Duchess, promise well, and await purchasers, who at sight cannot fail to recognize their superior conformation. Also four young sows of similar strain, and equally well up in quality, heavy, fine heads, with evenness all through, are held for sale either as they are or bred and when safely in pig. Before leaving it would be unfair to omit a short mention of Mr. Dorrance's piggery, which is a stone structure, 30x40 feet, and conveniently divided into eight pens. Due regard has been given to its sanitary condition, and we would say that it is one of the best lighted very comfortable; so that with the constant attention they were receiving at our visit there can be no doubt about the future.

CLYDESDALES FOR CANADA.
Messrs. Dalgetty Bros. have purchased from Mr. W. S. Park, Hatton, and shipped to Canada two well-bred Clydesdale stallions. One was the three-year-old Royal Fred, bred by Mr. Andrew Kirkwood, Drumbowie, Beth, and got by the noted horse Prince Frederick (8905), out of the dam of the well-known breeding horse Knight o' Lothian (4489). This is a useful, breeding-like horse, and if he does as well in Canada as his uterine brother did in this country he will be a profitable investment for all concerned. His neighbor is the big, flash colt Prosperous (10263), own brother to the unbeaten yearling Prince Eureka, and himself a noted prize-winner. He was got by Mr. James Lockhart's fine horse Mains o' Airdies, and his dam Carina (12313) was by Craichmore Darnley (567). He was bred by Messrs. Robertson, Clondrie, Stranraer, and in the hands of his late owner, Mr. Alexander Scott, Berryyards, Upper Glenock, he won, amongst other prizes, third at the Royal, Manchester; fourth at the Scottish Stallion Show at Glasgow, second at Greenock, etc.—*Scottish Farmer.*

They Liked the Advocate.
In a recent business letter to our office, Mr. Jas. Irwin, Newdale, Man., states: "I think every farmer should read the ADVOCATE."
Mr. Jas. Speakman, of Penhold, under date of Dec. 17, '97, says: "I did not intend to have your paper this year, but the paper turned out so interesting that I concluded I could not do without it."
When renewing his subscription for 1898, Wm. Hamilton, Manitou, says: "I like the ADVOCATE well, and would not like to be without it."
Mr. R. Emmond, of Treherne, mentioned in a recent letter to our office: "I would not like to be without your valuable paper."
"I am much pleased with your efforts," T. E. M. Banting, Banting, Man.
"Your paper improves steadily, and certainly must take a strong hold on the farmer," Geo. Hood, Lake Dauphin, Man.
"We are well pleased with the ADVOCATE. Like it better every year. Every farmer should take it," Geo. Compton, Opawana, Man.

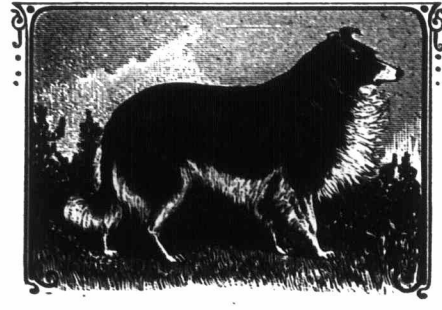
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OUR NEW Self-binder.

WE have for a long time in search of a suitable binder for the FARMER'S ADVOCATE, and have at last secured what is wanted. It is handy, neat, handsome, strong and durable; black duck back, and cloth sides, with gold lettering. Each copy of the paper, as it is received by the reader, can be securely fastened within the binder, presenting the appearance of a fine cloth-bound book. In this way the paper can be preserved for reference, thus doubling its value. The files of the FARMER'S ADVOCATE constitute a volume of practical high-class agricultural matter, thoroughly up-to-date, such as can be got in no other way. We answer hundreds of important questions during the year. In order that all our friends may secure it we make three propositions:
1st. We will send this splendid and useful premium, post prepaid, to any one sending us two new yearly subscriptions.
2nd. To the first one of our present subscribers at any post office in Canada sending us his or her renewal and one new subscription before January 15th we will send one binder post free. All others at same post office sending in new subscriber will be allowed their choice of premiums as per announcement in this issue. This binder is sold in the U. S. for \$1.25.
3rd. We will sell binders at 75 cents each.

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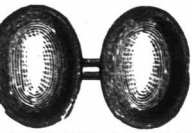
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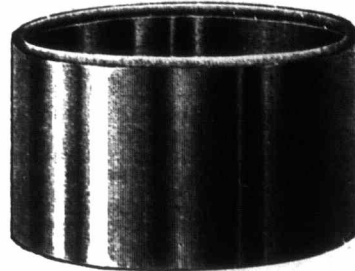
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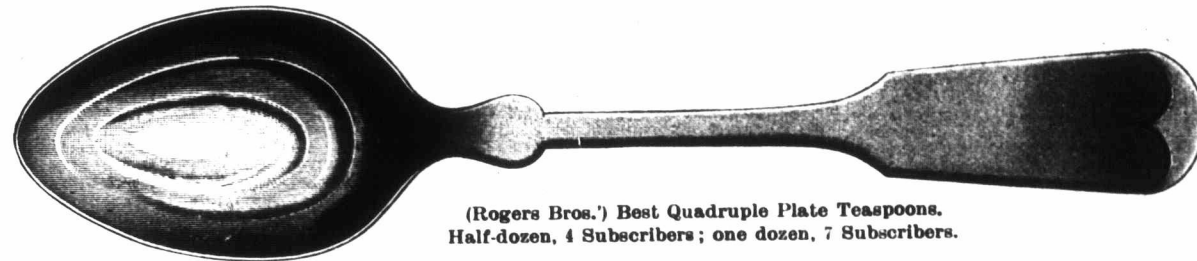
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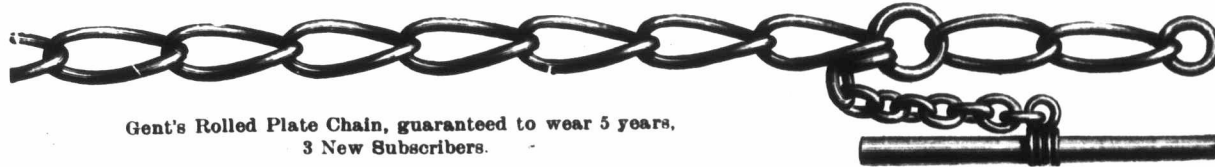
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