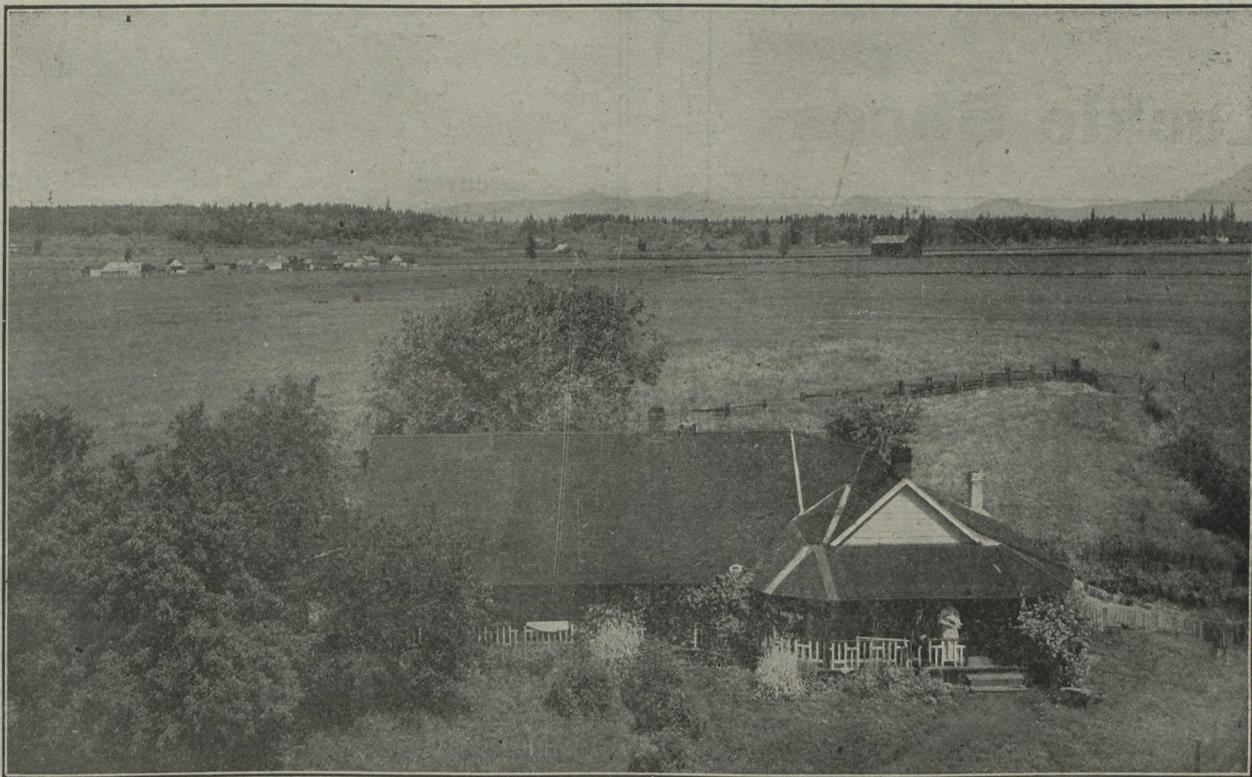


BRITISH COLUMBIA



Vol. VIII., No. 11

NOVEMBER, 1916



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BRITISH COLUMBIA Fruit and Farm Magazine

A Monthly Journal Devoted to the Interests of the Man on the Land.

Vol. VIII.—No. 11

Vancouver, British Columbia

[\$1.00 per year
in Advance

Started Without Capital and Made Good.

Some Farmers Who Have Helped to Make the Delta Famous as One of The Best Farming Districts in the Dominion.

Samuel Morley.

Alexander Davie.

Richard Keegan.

These names are not the names of politicians. Nor are they the names of men who have got themselves in the public eye in any unusual way. They are just the names of three of the good farmers of the Delta who have helped to make that district famous as one of the very best farming districts in the Dominion.

It is stated that there are not more than 1400 acres of what could be called waste

because they have made a more marked success than many another rancher in that wonderfully rich district. They were pickers rather because they were good examples of men who went into farming in British Columbia in a small way, with practically no capital other than their own good sense and a willingness to work, and have made good.

Many an article has been written about the farmer on the big ranch, with ample capital, surrounded with his hundreds of acres and barns full of fancy stock, and the remark is frequently made that it is money

one of the chief cereal crops of the district, though wheat is grown in limited quantities. The oat crop usually runs 37 to 38 sacks to the acre. These sacks weigh 97 to 98 pounds, so that the yield of oats would be approximately 110 bushels to the acre. To an eastern man this would sound like a joke, but in the Delta yields of 150 to 160 bushels to the acre are not uncommon. So rank is the growth on many of the farms that it is a common practice to cut the stand after it has reached a height of a foot or so, or to turn the sheep on to crop it down to prevent the grain from lodging before it is ready to reap.

The common yield of wheat is 50 to 60 bushels to the acre. A yield of 52 bushels to the acre on an Alberta farm the other day was heralded as a marvellous production, and for the ordinary farming district it is, but the Delta farmer would be grievously disappointed if he didn't average more every year. Yields of 80 bushels of wheat to the acre on special pieces of ground in favorable seasons are not unusual. The production of hay is equally wonderful. It would be safe to put the average yield of hay at three tons to the acre, and yields of five and six tons per acre have often been recorded. One individual took 60 tons of hay off a ten-acre field. He got \$600 for it right in the field. Potatoes, too, yield well, 12 to 15 tons to the acre being counted only average crops. One Chinaman who is renting 20 acres, is digging now and will take not less than 300 tons of good tubers off his plot. He will get this year at least \$25 a ton for them, or \$7500 for the crop. He is paying a rental of \$35 per acre, but even with this seemingly exorbitant rent will net a nice little profit.

One of the Pioneers.

Samuel Morley came to the west in 1885, so that he may be classed as one of the pioneers. He has the reputation of being one of the best farmers in the district. He is a hard worker, and believes in doing things right. He homesteaded near Aldergrove in 1886, but being taken with the appearance of things in the Delta bought 107 acres there, and in the spring of 1899 moved on to it. He had a team of horses and no money. He borrowed \$500 to make his first payment on the land, which cost him \$4000.

"The deal looked risky to me," said Mr. Morley to the writer, "but H. N. Rich, the man I got the money from, and by the way he's in business in Ladner yet, told



Mr. Alexander Davies' Farm House, Delta

land in the district. This may be underestimating it a little, but certain it is that a very large proportion of the land can be called good. The waste land is peat, and even this, it is asserted, will some day be brought into cultivation.

As an evidence that the district is an unusually good one it is stated that practically all of the farmers are doing well. One authority went so far as to say that at least 90 per cent of them were making money, many of them actually accumulating comfortable fortunes off their comparatively small holdings.

Samuel Morley, Alexander Davie and Richard Keegan were therefore not selected as the subjects of this little "write up"

that has made such a one's success—that anyone could do as much if he had the money. And while this is not quite true, because many a man starting with all kinds of money and under the most favorable circumstances has not been successful. The man starting with little money and in a small way, as the average man going into the business must also do, is a better and more encouraging example for us to consider than is the big man.

Where They Worked.

Just a few words about the Delta and its marvellous productiveness. It is all flat dyked land, and the bulk of it is heavy clay loam. Some of the stories told of its producing powers to the average outsider, accustomed to ordinary records, sounds like fairy tales, but proof for most of them can easily be obtained. Oats is

me I'd have no trouble in pulling it through, and I tackled it."

Four years later he bought 115 acres, for which he paid \$7000. Both these places are now paid for, and today are worth \$200 per acre of any man's money. He has built two good houses on the places, besides one of the completest barns in the Delta. He used to milk 22 cows, but is now only milking 12. He has a number of fine heifers coming on however, and as dairying is his forte he will doubtless have a larger herd than ever within a few years. He is making money but is too modest to say how much.

Rents a Quarter Section.

Richard Keegan is one of the newer residents of the Delta. It is only four years since he came to British Columbia from the Province of Ontario. He is living on the David Woods farm. The history of this place is much similar to that of the Morley farms. Mr. Woods paid \$12,800 for the quarter, together with the barn. This was in 1900. The initial payment



Farming Scene, Lulu Island

made was \$500, \$200 of which had to be borrowed. A fine new house was built and the farm all paid for within six years, besides a good outfit of stock and implements accumulated. Richard Keegan is a good illustration of the fact that in this district a man can pay a substantial rental and still do well. As stated he has been at it in the Delta for four years, and during that period the farm has produced close to an average of \$6000 per year. Hay, oats and wheat are the chief sources of revenue. One hundred and fifty sheep are kept and four cows milked. This year close to 2000 sacks of oats were produced on 52 acres. They have been sold for \$25 per ton.

Started Without Capital.

Alexander Davie is one of the largest farmers of the Delta, being at the present time the owner of 380 acres. Like many of his neighbors, he started without capital and in a country where land was dear. He also was an Ontario man, hailing from the County of Durham. He bought his first farm of 260 acres in 1902. It cost him \$20,800, and he had practically no money to put down on it. The assumption of such a liability would have been enough to stagger the average man, but previous to buying he had been renting, and knew what could be done on the land. He paid

off every dollar of that huge liability in five years, and made it all on the place. When he struck the district first he rented 300 acres, together with 44 head of cattle. For this outfit he paid \$1000 per year, and as an illustration of the increase that has taken place in rentals since that time, it is stated that 186 acres of that same farm without any stock at all is today renting for \$2000 per year, and the man who is paying that rent is making money. In the year 1911 Mr. Davie purchased an additional 120 acres, for which he paid \$40,000, or close to \$350 per acre.

Mr. Davie is still a young man and is an enthusiastic believer in the future of this province. As an instance of what Delta land will do he mentioned one year having taken nearly 1200 sacks of oats off a 25-acre field. Oats were selling that year at \$28 per ton, and the product of that field brought him \$1915, \$1660 for the oats and \$255 for the straw at 25 cents per bale. He is at present the possessor of a very fine herd of cattle, 30 of which are milking cows.

GREAT FOREST FIRES OF HISTORY

The Northern Ontario forest fires of July 29th last takes rank as the third most serious fire catastrophe in the history of this continent. The Hinckley fire in Minnesota, 1894, was responsible for 418 lives and the burning over of 160,000 acres. The famous Peshtigo fire in Wisconsin, 1871, killed 1500 and devastated 1,200,000 acres of timber. In 1825 occurred the Mirimichi fire of New Brunswick and Maine, with a loss of 160 lives, six towns, 1000 head of cattle and damage of 3,000,000 acres of forest. The Clay Belt fire in Ontario, with 262 lives lost and 800,000 acres fire-swept, takes its place with the great disasters of history. The Porcupine fire in 1911 killed 84 persons.

It is noteworthy that Wisconsin, Minnesota, Maine and New Brunswick have taken comprehensive measures to prevent further disasters by organizing their forest patrol systems on modern lines, building trails, lookout towers, telephones, etc., as well as carefully supervising settlers' clearing fires, one of the worst sources of danger. Ontario, which has given the continent its two most recent fire catastrophes has made no such move to modernize her forest guarding system.



Synopsis of Coal Mining Regulations

COAL mining rights of the Dominion, in Manitoba, Saskatchewan and Alberta, the Yukon Territory, the North-West Territories and in a portion of the Province of British Columbia, may be leased for a term of 21 years, renewable for a further term of 21 years at an annual rental of \$1 an acre. Not more than 2,560 acres will be leased to one applicant.

Application for a lease may be made by the applicant in person to the Agent or Sub-Agent of the district in which the rights applied for are situated.

In surveyed territory the land must be described by sections, or legal subdivisions of sections, and in unsurveyed territory the tract applied for shall be staked out by the applicant himself.

Each application must be accompanied by a fee of \$5 which will be refunded if the rights applied for are not available, but not otherwise. A royalty shall be paid on the merchantable output of the mine at the rate of five cents per ton.

The person operating the mine shall furnish the Agent with sworn returns accounting for the full quantity of merchantable coal mined and pay the royalty thereon. If the coal mining rights are not being operated, such returns shall be furnished at least once a year.

The lease shall include the coal mining rights only, rescinded by Chap. 27 of 4-5 George V. assented to 12th June, 1914.

For full information application should be made to the Secretary of the Department of the Interior, Ottawa, or to any Agent or Sub-Agent of Dominion Lands.

W. W. CORY,

Deputy Minister of the Interior.

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Military Colonization

Organization of Communities of Settlers Advocated by South Vancouver Resident.

(By F. W. TUCKER.)

To those governments deeply interested in the returned soldier problem, to corporations having tracts of land on their hands requiring settlers, and others having the wish but not the means to get back to the land, where they would be best occupied, I offer these few suggestions.

Military colonization has proved a success. The Roman Castra or camp was the centre, even in an enemy country, round which an agricultural community developed. The natives were trained, helped and provided with roads, and a market. Such markets exist today in England, and are shown in the names, such as Chester, Winchester, Colchester—the latter still a military camp.

So also were the early settlements in the colonies, where though more fearlessly spread out and isolated, success was won in the midst of savage alarms. Then why, with these dangers removed, should there be any fear of a similar success?

The men, the ex-soldier, like other has-beens, does not forget to let one into his confidence, when he does not make good. Those who get on mingle with the crowd, and therefore the class should not be judged by those most in evidence, and many men, so constituted that they cannot find new employment, nor yet employ their time usefully when out of work, make good first class workers when they are under a master.

Many men with some knowledge of farming, or a trade, have used it in or behind the firing line, and could do the same in a settlement.

When peace is declared many soldiers will have higher ideas of what should be done for them, and will have earned the very best consideration, than what can be done for them, and time and patience will be required before all runs smoothly; but if an opportunity is given to a civilian to go onto the land, thus making room for a soldier, better fitted for the position, an indirect benefit accrues to the latter.

No More Wars.

Discussions generally run on the assumption that there will be no more wars after this one; at least not in our time, and that these men who joined for the war will be discharged at once, the balance as soon as possible. The Canadian government may not retain a large standing militia, and it would be well to have a reserve in such colonization schemes, where they could be found if wanted in a hurry, and where there would be a system of authority, discipline or inducement, and certain settlements might be reserved for men needing extra care or encouragement.

The wrtier's experience amongst settlers on the prairies in the '90s seemed to be that the hired man, when he got what was agreed upon, came out best financially, apart from the improvement in land values, and if there were enough settlers in the neighborhood no better plan could be adopted than to have home farms for training, and those men out of employment to return to—similar to that of Dr. Barnardo in Manitoba—which, while assisting, protecting and training the lads to farm life, was of benefit to the surrounding settlers and the province at large. But instead of such settlers already there we should have

the returned soldiers as fast as they could be equipped, and such other settlers as might join the colonies, for mutual benefit.

Given the tract of land, the home shelter and enough money in hand to start, together with a system of debtor and creditor, that each man should receive some pay while at the home, and be charged for his keep, would prove best in the long run. The first difficulty would be to find a manager. I will not give a list of what he would be required to know something about, but the following details may exemplify a few of the trades:

Regarding finance, many wishing to join such colonies will have city property, houses, etc., and these should be taken over in trust, and greater loans could be given to the owners than on the security of their agricultural land grants, if required.

While in a prairie country an advance to each settler might be made for shack, stable, team and seed, there is always an element of speculation in grain crops, and in fruit growing, a long wait for first and annual returns afterwards, and while these two classes of farming attract the bachelor, for a time, it is dairying and mixed farming that proves the best for a lasting settlement and bringing up of families.

Cows Bring Contentment.

Take the world over and where there are cows, there is contentment, and a good living, milk, eggs, a good flitch of bacon, or

hams, hanging from the ceiling, with a chicken for a change, and, what is more, a steady income weekly to pay for groceries, etc.

As soon as the home has been erected cow barns should be added and cattle bought for training the men, and as a breeding nucleus and a dairy with machinery enough to handle the milk or cream of the neighborhood, and arrangements for handling and shipping eggs and other produce.

Money could thus be safely advanced for buying live stock, especially if covered by insurance, and where the borrower proved a failure the cattle might be taken back until resold.

Butter would be preferable to cheese-making, as the higher value for weight saves freight, and the skim milk encourages the raising of calves, hogs and chickens.

In 1888, when the writer was in New Zealand, to encourage the dairy industry, cheese was down to 38 shillings per cwt. in London, and butter locally at 6 pence per pound, and farmers could only count on about 2 1-2d or 5 cents per gallon for their milk, and yet they went into the business heartily. Prices here are now 43 cents per pound for butter fat, on the stand, or over 20 cents per gallon. The milk selling business grew in England on eight and twelve cents per gallon, with high rents, etc., to contend with.

For the repayment of loans, it would of

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course be stipulated that the settlers send in milk or cream, eggs and other produce to the centre, and say half the returns applied to payment of interest and repayment of principal, and the other half for the farmer, most of which, in the case of butter, could be paid immediately, and especially in Alberta, government controlled creameries have proved better for the settlers than even co-operative companies, and naturally the more cows the less cost of manufacture per pound of butter.

Of course cows vary as to quantity of milk and per cent of butter fat, but taking last August milk delivered to one factory near Vancouver, for example, 66 farmers averaged 3.6 per cent of fat, from 3 up to 5 per cent., each sending from 30 up to 1000 pounds per day.



Scene in B. C. Nurseries

The average amount of butter made per cow in the Old Country, personally arrived at by first asking the farmer how many cows he was milking, and then from his wife how much butter she was selling, was six pounds per cow per week, using a cream separator.

Now six pounds per cow at 30 cents per pound, equals \$1.80, and for 10 cows \$18, for a 30-week season runs up to \$540, and half of this spread over 12 months is \$22 per month for groceries, etc., the remaining half, \$270, would pay the interest on a \$2500 loan and \$100 per annum off the principal. The farmer would make what he could from the rest of the land, chickens, etc., according to his inclinations, in the usual way.

The great drawback to mixed farming is the first cost of all implements required, but this is being overcome by the co-operative societies, by loaning out when wanted at certain rentals, and in some cases men taught to use them to best advantage are included.

The day of attempting to get farmers to attend school is passing away, and a man who, in addition to practical experience, has some theoretical knowledge, is being placed in each district for cow testing, etc., and the demand for such men exceeds the supply, as it is not easy to please a whole community of farmers, and he has to sleep at the farm he works at that day. Now the manager at the centre could train a soldier to do the routine work, or better the men now partly paid by government would be good material to choose for managers.

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Much Can be Done by Care and Watchfulness on the Part of Farmers to Raise Standard of the Common Stock.

The growing scarcity of stock in Canada and the increasing profitableness of the stock raising business is almost sure to cause a strong effort to be made by many to increase their flocks. This seeking after quantity is likely to bring with it a lowering of the quality. This danger should be avoided. Quality should not be allowed to suffer in order that temporary profits can be made. Continued success should be sought after. The farmer and herdowner should turn his attention to more scientific methods of cultivation and to bring his herds and flocks up to the highest pitch of efficiency and profitableness.

There are two ways of increasing profit: Raising the price of the product, or decreasing the cost of production. The first named is not possible to any great extent, except by creating a demand for a special brand, which by forcing the recognition of its quality may be able to command increased prices. The last-named method is the most feasible and is the one which needs emphasizing.

There are several phases of this subject that govern, more or less, the cost of production. One of them has to do with the class of animals in the herd.

In the average herd there are good, bad and indifferent animals. In too many herds practically all the animals belong to the two last-named classes. Until this is changed those particular herds cannot bring their owners much profit. They may pay for feed and labor, in which case the owners are to be congratulated, but in most cases there will be a deficit when the accounts are balanced—when market prices are allowed for time and feed.

Keep Only Stock That Pays.

There is at present a desire to get and keep better stock. It is, in fact, probably true that no subject is receiving more attention just now than that of eliminating the unprofitable animals from the herds. Both the dairyman and the breeder of beef animals recognize this necessity.

Various qualifications govern all classes of stock. Upon our ability to distinguish and make use of these will depend our success in developing high-class, profitable animals. In order of merit and importance these qualifications are: Utility, or the ability to yield the greatest amount of saleable produce or labor with the lowest consumption of food; constitution, or resistance to disease, drought and adverse conditions; prepotency, or the faculty of transmitting these qualifications to succeeding generations; fecundity, or the regular and abundant production of healthy offspring; uniformity of type, beauty and symmetry. It is the distinguishing mark of a good stockman to be able to incorporate these qualities into his particular herd. It is not impossible—it is being done by thousands of good breeders. Man is always achieving the impossible, or in other words nothing is impossible to the man who is determined to reach a high standard.

Improve the Herd Every Year.

From every herd there are some members to be removed almost every year, and it should be made a point that, whether the cause of removal be old age or poor production, the animal being introduced into the herd should be of higher merit than the

retiring individual. The farmer cannot always be sure of every heifer reared from the best producers being large producers, but, knowing the dams, he may look for a semblance to them in the daughters.

One must recognize the fact that no matter how good the foundation stock, how well fed and cared for they are, that they will deteriorate unless breeding and selection is constantly practiced. There is a tendency to degenerate in all breeds. This would account for the myriads of scrub animals which are found in the country. This tendency is only counteracted by careful selection of the better types. Inferiority of any kind is a defect which has been inherited, and is, therefore, very apt to be transmitted. The only safe way to remedy its ill effects is to study out where the faults of an animal are, and to meet them with a cross with another which is in that particular strong and good, or by discarding the animal entirely.

We must also work towards fixity of type. This will bring uniformity, and the advantages of having a herd uniform in size, disposition, etc., are obvious. Nor is mere beauty of form and color to be wholly disregarded since it is quite as necessary to have handsome herds as it is to beautify the other surroundings of the home.

Of course, in some pure-bred herds cattle are not valued for their general utility,

but because they have a fashionable pedigree. They may have been bred so much in and-in that they lose to a great extent those useful qualities which are likely to prove useful. Fortunately, there are also many herds in the country where practical utility, good milking qualities, robustness of frame, early maturity and constitution have been kept in view. These herds are making the livestock industry profitable for their owners.

Build Up a Definite Type.

In building up a herd a definite standard is absolutely necessary before we can hope for much in the way of improvement. Without this we are apt to fluctuate between different ideals without making appreciable progress towards any one. Having a definite standard to work up to, the good females should be retained, while the inferior animals should be weeded out, always keeping in view the important point that what we want to breed from is an animal that will produce the most weight and of the best quality, either of milk or flesh, in the shortest time, and at the lowest cost for food.

Breeding Better Than Buying Cows.

Too many follow the wrong method of building up a profitable herd. They buy cows. This is seldom wise, as only a few farmers have sufficient capital to pursue this method, and in addition it is not the

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best method to adopt in increasing the profits from the herd. It is rather unsafe to risk good money in buying cows in the open market. Good cows are scarce and are seldom for sale. The only remedy for farmers to adopt is to rear the heifers by a good bull from the cows that have proved productive. This is the only practical and certain way of getting a good herd together.

The sire selected to head the herd will have a great influence upon the future of that herd. He is more than half the herd and hence too much care cannot be taken in his selection. A scrub bull should not be used under any consideration, but only pure-breds should find a place in the ordinary herd, bearing in mind always that individual excellence must receive as much attention as pedigree if good results are expected. The object to be attained, whether dairy or beef, will govern the type of animal to be selected.

One cannot expect bulls bred with a strong milking pedigree to look quite the same as those which are the product of beef strains alone. These latter are much thicker and blockier, and deep through the heart, but if one possesses bulls of ample frame, with their lines light and color good, with a fair amount of flesh, there should be no difficulty in building up a good herd. One naturally expects in a herd which is devoted to producing animals of a beef type to find them more perfect there than in a herd whose chief duty is to fill the milk pail, and vice versa.

Breeders can maintain an ideal of milk and beef in one animal, although as a rule the heaviest milkers often make the poorest showing in flesh. If the breeder aims at the maximum of both flesh and milk, he should, in choosing a sire, first select one which has the necessary depth of flesh, and after he has satisfied himself on this point, see to the milking properties of the dam. If these are not satisfactory, he should select another, suitable from the flesh point of view, and again test the milking powers of the dam. He must not begin by selecting a heavy milking dam, and buying her son irrespective of his breed, appearance and flesh-forming capabilities.

Whatever the direction of the improvement desired, breeding from the best is the only wise method to pursue. The ultimate object must be kept in view, and with careful selection, combined with good feed and treatment, the result should be a herd far above the average—a herd that will command top prices and be correspondingly profitable to the breeder.

Electricity on the Farm.

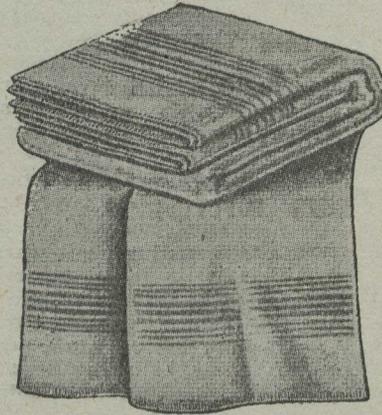
An instance where electricity came to the help of a Lulu Island farmer recently occurred on the farm of Mr. William Oldfield, No. 3 road, Lulu Island. Mr. Oldfield uses electric motors on his farm for root cutting and such work and for operating his milking machines. When rain was threatening a few weeks ago, Mr. Oldfield was in the midst of threshing operations. He realized that if his threshing was not completed, a serious delay and probably a loss would occur. He accordingly strung one or two extension wires from the lighting circuits in his barn and continued threshing during the evening to the light of tungsten lamps. He finished well towards midnight, but beat the rain by about an hour.

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Have you ever considered the great benefit and amount of comfort derived from a pair of soft, fleecy flannelette blankets on a real cold, frosty night? Just think of the possible sickness you may prevent by entering your bed without getting that cold chill caused through the ordinary cotton sheets. You may use wool blankets as sheets, but a pair of these flannelette blankets will save your woollens. We have them in two sizes and can supply in either white or grey.

Sizes 64" X 74" \$1.95 pair delivered.
" 72" X 80" \$2.25 pair delivered.

Please mention the Fruit and Farm Magazine when ordering this line.

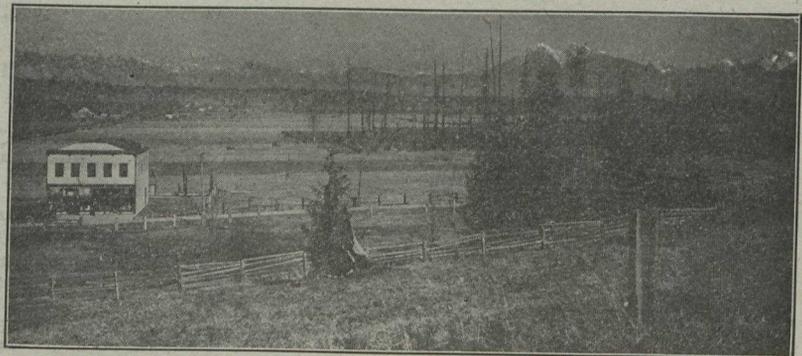
Write for Our General Catalogue.

CANADIAN WHEAT CROP ONLY HALF THAT OF 1915

According to the latest reports received from Ottawa the wheat crop of Canada for the present year will be only 159,123,000 bushels as compared with 370,303,600 bushels in 1915, according to an official

yield of 338,469,000 bushels from 9,797,500 acres, a yield of 34.55 bushels per acre, as against 45.776 bushels last year when the production was 520,103,000 bushels from a harvested area of 11,365,000 acres.

The barley crop was estimated at 32,299,000 bushels from 1,328,800 acres, or



View of Langley, Showing Mountains in Background

estimate issued yesterday. The average yield per acre was estimated at 15 7-8 bushels from a harvested area of 10,058,300 acres, as compared with 29 bushels from a harvested area of 12,986,400 acres in 1915.

A marked decrease in the production of oats also was indicated by the estimated

24.31 bushels per acre. Last year's crop was 53,331,300 and the acreage 1,509,350.

The probable production of rye was announced as 2,058,500 bushels from 101,420 acres or an average yield per acre of 20.30 bushels as against a total production in 1915 of 2,394,100 bushels from an acreage of 112,300.

The Garden in Relation to the Home.

(By WM. P. PLEMING, South Vancouver.)

"The happy homes of England
How beautiful they stand
Amid their tall ancestral trees
O'er all the smiling land."

These lines, and the truth which they embody strikes one with a particular force in the contrast afforded in this western land by the multitude of houses erected in the bareness of surroundings, in the painful newness and completeness of a recent townsite clearing.

Whether there remains in man, as a legacy of far past ages, when his ancestors lived in primitive condition, an instinctive love of trees and flowers, and a persistent desire to live beneath and amongst them, or whether it be a cultivated or acquired taste or a natural reaction from the formal environments of a modern business life, I will not say, but nevertheless there is inherent in all of us a decided appreciation of nature in its simple and pleasant aspects.

This spirit of nature may influence some of us occasionally, as when for a rest and a change from a busy city life we run for a day or a week-end into the country and amid its forests and fields find rest for the mind and happy forgetfulness of petty worries.

Or it may be when the heat of Summer becomes too oppressive, the thoughts of clear mountain heights or cool valley shade—of fields of grass and clover—of trickling stream and dim forest glade—bids us put modern life aside, and with a happy abandon we take our vacation and for a few brief weeks live true to nature and our hearts' desire.

But to most of us there is the possibility that this association and communion with nature may be a continuous part of our daily life, and we may experience the pleasure of seeing the beauties and mysteries of God's great creation develop around us aided and encouraged by our every touch. Nature is very responsive to carresses. She responds with alacrity to kindly overtures and repays a hundredfold our little attentions.

Consider our opportunities as pioneers in this new west. If he who makes two blades of grass to grow where but one grew before is a benefactor to his race, what shall we say of those who replace alder and willow with peach and apple trees, the spear grass and devil's club with pansies and roses, the bracken and skunk cabbage with succulent roots and herbs. And as surely as men do not gather grapes off thorns, we may leave a priceless legacy to future generations, in a city of no mean fame, whose avenues of grassy boulevards and stately shade trees are bordered by homes whose well-kept lawns and attractive flower beds and productive gardens betokens a citizenship whose enterprise, ability and friendly rivalry in congenial pursuits, speaks volumes for their industry, resourcefulness and economy.

And apart from the acknowledged value of a well-stocked garden as a contribution to housekeeping; apart from the enhanced value attached to a place whose well-kept gardens makes it attractive as a residence, there is no occupation so engrossing, no hobby so interesting, no work so responsive as that which a garden affords, in

which a man or woman or child may each or all engage, and by assisting nature to do her best be rewarded by seeing the wonderful development of "first the blade, then the ear, then the full corn in the ear" or "first the bud, then the flower and in due time the full fruition."

And so the garden stands in its relation to the home as the framing essential to set the picture to advantage; as the spot where the family can find work, recreation, rest, amusement or profit; can work out experiments or follow out ideals; can view with interest, pleasure or pride; on which a man or woman can stamp their individuality and in which by the process of development under their hand, the plants of the garden become as part of the family life and their welfare and progress of real daily interest.

In this respect I will understand the feelings of the girl who, returning from an extended visit and finding her favorite flowers wilted or neglected, burst into tears, for to her they were as her children.

In conclusion let me say that any effort spent in the cultivation or beautification of the garden provides such a subject for consideration, consultation and conversation, proves such an added interest to the private life of the family that it abundantly repays the little expenditure of time or money and it inevitably contributes considerably to that most desirable of all sentiments, "There is no place like home."

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Keeping Goats in British Columbia

Profitable and of Great Importance.

Penticton Barrister Who Has Been Experimenting With Little Animal Declares He Is Surprised That It Is Not More Extensively Used—Milk Very Rich and Free From Germs.

Mr. Norley F. Tunbridge, a barrister of Penticton, writing to Fruit and Farm, gives the result of experiments he has been trying with goats during the past two years. He believes the question is of national importance and that if the public were educated to the real value of the little animal it would be used extensively and great good would result. He says in part:

About two years ago, just after my little girl was born, I thought that it would be well for me to get hold of a good, up-to-date work on general hygiene, so that Mrs. Tunbridge and myself might learn what the medical profession advise us on the general principles of hygiene in the home, and more particularly in regard to diet, both for the food of ourselves and of our baby. I purchased a book on this subject by an Austrian doctor, Dr. Arnold Lorand, a man very well known in European and American medical circles; and in this book, in a chapter on the very great advantage of a diet consisting largely of milk, which he calls the most valuable food there is, and of the great benefits of milk as a food for everyone, whether young or old, healthy or invalid, he remarks as follows: "In order to derive the greatest possible benefit from this most excellent food, it would be necessary to take human milk, as thus we introduce in our system the intertal secretions of human ductless glands and human ferments. Such good fortune, however, can only fall to the lot of infants, and we are sorry to say, not to all of them. Therefore we are obliged to use the milk of those animals which is the next best to human milk, for example, asses' milk. This, however cannot be obtained easily; two pints of it would cost in some places about a dollar. The next best substitute is goats' milk, which also contains ten times as much iron as cows' milk. It is a great puzzle to us why the milk of this animal, which is richer in oil and albumin than cows' milk, is not much used. The goat is rarely subject to tuberculosis, which is also a strong argument for the use of its milk."

Thought Goat of No Value.

Up to the moment of reading that passage, I, in my deplorable ignorance, had considered the milch goat to be an animal of practically no value; an animal that smelt strong and would eat garbage; and the milk—well, I thought that must necessarily be strong too. In fact, if I had ever been asked what I thought about the milch goat, I would probably have turned up my nose and said, "Why, that's kept as a sort of back-yard scavenger, and only kept by those too poor to keep a cow." But these remarks, made by a doctor of the standing of Dr. Lorand, immediately set me thinking, as I knew first, that tuberculosis was, and is, a disease very prevalent in Canada as well as in other countries.

Secondly, I knew that tuberculosis is very prevalent in cows. From the official reports of the United States during the years 1907-1914 inclusive, 579,617 goats were slaughtered and inspected for tuberculosis, and not one single animal was con-

demned for tuberculosis. On the other hand, during the year 1914 only, as many as 29,738 cows were condemned for tuberculosis in the States.

Thirdly, I knew that during the past decade, as indeed we have been told by Professor McDonald, the live stock commissioner, when he was here some three years ago, that it had been proved by experiment, and notably by a very conclusive experiment conducted at Edinburgh, that tuberculosis can be, and is, transmitted to the human race through cows' milk; and it seemed obvious that the amount of infection through cows' milk could not possibly be measured, and it might very well be that this source of infection is one of the principal means of the spread of this dread disease.

And so I reflected that I could get a supply of milk for my baby which would cut out this source of infection, and at the same time would supply her with an article of food which was superior to cows' milk, I was going to get it for her.

Milk Like Thin Cream.

After detailing the difficulty he had in securing a goat, Mr. Tunbridge continues:

When this nanny came in fresh Mrs. Tunbridge and I tested the milk for the first time—after some misgiving at first—as we rather expected it would have a strong taste, but our surprise was complete

when we found that, if anything, it was superior in flavor to cows' milk, being like thin cream, and we found that a cup of tea or coffee with goat's milk was infinitely superior to the same with cows' milk.

In the meantime, having come to an actual experience of this animal, and finding that my nanny, so far from being strong-smelling, was perfectly sweet and clean and a great pet, I got more interested in milch goats, and started making further enquiries, with a view to purchasing one or two more; and I also made extensive enquiries as to what the medical profession in general thought of them where they had had experience of them. Through the live stock departments at Ottawa and Victoria I was put on the right track by which to follow up my enquiries. I found that there was a very great demand for these animals in the States, caused chiefly through the numerous recommendations by doctors of known standing, and the department at Victoria told me that this demand was spreading into Canada, and particularly into British Columbia, and that so many enquiries had been received of late about milch goats, that the government had just issued a bulletin upon this animal.

Doctors Favor Goats' Milk.

As a result of my enquiries as to what the medical profession thought, I found an overwhelming opinion, both in Europe

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and the United States, in favor of the use of goats' milk instead of cows', both as a means of prevention of tuberculosis, and also as a food for all, but more particularly for infants, invalids and those suffering from tuberculosis. Numerous doctors' opinions could be quoted and I have yet to find one single doctor who does not strongly recommend the milk of this animal.

I should like to quote the opinion of two more doctors besides Dr. Lorand, which are good illustrations of what the leading members of the medical profession think on the subject.

First of all, in regard to the question of tuberculosis, Sir William H. Broadbent, Bart, K.V.C., M.D., F.R.S., late physician in ordinary to the King and the Prince of Wales, in an article in the Standard Family Physician on the prevention of consumption and other forms of tuberculosis, treats of the two only sources of this disease, and after touching upon, first, the infection from the sputum in advanced cases, he says as follows: "But there is another way in which tuberculosis is disseminated, and that is by means of milk. Cows are very subject to tuberculosis, and at a certain stage of the disease tubercle bacilli are present in the milk. It is through milk so contaminated that children come to have tabes mesenterica, a tuberculous disease of the bowels, and mesenteric glands and tubercular benengiti, or acute hydrocephalus. The diseases of bones and joints to which children are subject are also probably traceable to milk, humpback, hip-joint disease and diseases of knees, elbows, etc., which cripple so many children; perhaps so is lupus, and no doubt the tubercle is often implanted by milk in early life which develops later into consumption. It is interesting to note that asses and goats do not suffer from tuberculosis, and to bear in mind that shrewd physicians of past days used to order asses' and goats' milk for persons suffering from consumption."

Experience of Other Nations.

And how about the experience of other nations with goats? Practically all the older nations of Europe, and also in South America, appear to have made extensive use of the milk, and this for centuries. In Europe some of the highest priced cheeses on the market are made from goats' milk. Germany, our arch-enemy, but Germany the nation of scientific thoroughness, recently made an investigation in several districts in south-eastern Europe as to the relation between the number of milch goats kept in a district and the rate of infant mortality in that district, and in several districts statistics were taken as to the number of goats, per thousand of population and, as to the rate per thousand of infant mortality. In every single case the figures showed that where the number of goats per thousand of population went up, the rate of infant mortality in that district went down, and where the rate of goats per thousand went down, the rate of infant mortality went up. As a result of this investigation we were informed last year that the German government was buying up large quantities of milch goats to supply the milk to babies in the larger cities who could not get it.

I might go on giving instances and proofs of the benefits to be derived from the use of the milk of these animals, but the above are enough to convince the most sceptical. I myself came to the conclusion that the ignorance about the value of this animal was deplorable, and that we and those of us who are parents more especially

so, are rank fools to use cows' milk if we can obtain a supply of goats' milk. Doctors in the States are advising the use of these animals so largely that the demand there for them is a long way ahead of the supply, and the milk is sold at 25c to 60c a quart.

Suitable to B. C.

And what about the adaptability of this animal to British Columbia? One of the most successful countries in raising first-class milch goats is Switzerland. British Columbia is essentially a country like Switzerland, where the goat thrives to perfection. All these waste mountains here that are at present producing nothing could be made to feed thousands of these animals. Our own B. C. Bulletin on the subject says: "Goats in Germany and Switzerland yield annually \$60,000,000 of products, three times the assessed value of the animals themselves. In British Columbia at present there are many more wild mountain goats than goats of the domesticated breeds. Switzerland is a country only one-twenty-fourth the size of British Columbia, yet its annual yield of milch goat products is equal in value to half the total annual yield from agriculture in the province. This illustrates the possibility of the industry that will one day be realized on the millions of acres of mountainous and rugged land in British Columbia."

But this is a condition which it will take some years to obtain. In the meantime there is no reason at all why everyone who has a bit of back garden should not keep one or two nannies to supply the family with all the milk required. The fruit rancher could fence off a little corner of his lot and keep a few goats which would not cost one-tenth as much as the feed of a cow, and would produce something much more valuable for consumption.

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McKay, B. C.

CHILLIWACK

FOR SALE—House and large lot in Chilliwack, "the garden of British Columbia"; seven-room house, electric light, city water, garden full of flowers, fruit and vegetables; five minutes' walk to postoffice and cars; fishing the year round; shooting in season; fifteen swarms of bees in Langstroth hives, producing hundreds of pounds of honey. See owner on the place. M. J. Henry, Chilliwack.

OBITUARY

Elise J. M. Layritz, beloved wife of Richard Layritz, of the Layritz Nurseries, Victoria, B. C., died after long and severe illness, at St. Joseph's Hospital, Victoria, on October 4, aged 33.

Calgary Soil Products Exhibition Advertises British Columbia Fruit.

The first Calgary Soil Products Exhibition was a huge success. It surprised the expectations of those in charge and of every Calgarian. It proved all that the advance notices had said it would be. It showed prairie people that British Columbia can grow the finest apples in the world. Prairie people became better acquainted with British Columbia apples, their varieties and when to use them.

The apple display was the talk of the show. The Canadian exhibit at the San Francisco Exhibition was the centre of attraction there and likewise the apple display was the Mecca of all visitors to the exhibition.

The many fine exhibits called forth no small amount of praise, while literature about fruit was being handed out to the hundreds of inquirers continually. The guessing contest kept hundreds standing in line counting the number of boxes, the number of apples that could be seen and the apples in the baskets.

The boxes were piled five high on a long tilted table measuring 10x75 feet, with the red and green varieties worked out harmoniously, in a clever color scheme. In the centre a big read cross was worked out for the Military Chapter of the Daughters of the Empire had a refreshment booth in the arena where baked apples, taffy apples, deep apple pie and just plain apples were sold to the hundreds of people who attended. This Chapter of the Daughters of the Empire deserve great credit for the excellent manner in which they advertised our apples. They talked apples, sold apples, displayed apples and talked more apples during the whole three days of the show. They realized a goodly sum which will be devoted to Red Cross work.

The auction sale which was held nightly attracted a good crowd, and while the prices realized were not high there was manifested much good humor and this did not a little in creating still more interest in the apple display.

Only part of one lot of exhibition apples was sold, the rest coming from the jobbers' warehouses, for it was impossible to secure any quantity of seasonable varieties for any one sale, and hence the disposing of a large number of McIntoshes. A fair-sized sum will be turned over to the Red Cross fund as a result of the sales.

Next week will see a large number of the retailers throughout Calgary with these show apples in their windows, for arrangements have been made with a number of retailers for the disposition of the apples at fairly good prices. By doing this the excellent advertising which we received at the exhibition will be carried still further.

Here is what the Calgary Herald said about the fruit display at the Exhibition.

Artistically arranged as to grouping and color effects the display of apples from

British Columbia was ranged high up and occupying all the available space at the west end of the building. Commissioner McTaggart and his staff have been extremely busy getting this display in shape, and the result was universally admired. Some little difficulty was experienced in getting the apples over for exhibition purposes, as the growers are extremely busy just now. They are short-handed to begin with, as so many of the men who assisted in packing have gone to the war. This is the season when the winter apples are being picked and packed, and on this account the results speak well for the efforts of the commissioner's staff and for the assistance which he has received from many of the prominent growers of the western province.

There are fifteen varieties of apples shown, suitable for every use, and our Ontario friends who think that the Northern Spies from that province are the last

word in good apples should take a look at those from over the mountains. The apples come from Vernon, Summerland, Creston, Chilliwack, Walhachin and other points.

Evaporated and desiccated fruits are also shown, and those are beautifully prepared in the most up-to-date factory of its kind on the continent. Towers built of tins of salmon, that other very important product of the sister province, are also used in the display which is all specially set off by the transparencies showing scenes in different parts of the fruit growing sections of the province.

Develop Into Great Show

"This will develop into one of the biggest apple shows on the continent," said Fruit Commissioner McTaggart to The Herald. "The growers have taken splendid interest in preparing for it, and as 75 per cent of the British Columbia fruit is sold on the prairies, they are all realizing

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that this is the trade which they have to cater to." He also spoke very warmly of the support which the local dealers had rendered and the practical work which the members of the Military Chapter of the I. O. D. E. was doing in serving the appetizing baked British Columbia apples.

Among the prominent fruit growers of B. C. who are in the city for the exhibition some of whom are exhibiting, are: D. H. Watson, of Summerland; A. C. Fisher, of Hatzic, who ships strawberries out in the month of November; Thomas Abriel, of Nakusp, the president of the B. C. Fruit-growers' Association; J. A. Nolan, of Calgary is also showing some fine apples which are from his orchards at Summerland.

As another means of adding interest to the show beyond the regular newspaper advertising and the general publicity afforded B. C. apples on this occasion, the Regent Theatre ran moving pictures depicting vegetable growing scenes in British Columbia, supplied by the British Columbia censor of moving pictures. These were run on Wednesday and Thursday and the hundreds of people who visited this popular photo playhouse were told of British Columbia and its resources in this manner.

Retailers throughout the city had special window displays in which B. C. apples were featured and prizes were given by the jobbers for the best dressed windows.

The awards made were as follows:

Class 144, Exhibit of 50 boxes or more—1, Okanagan United Growers, Ltd., Vernon, B. C.; 2, Walhachin Apple Growers' Association, Walhachin.

Class 145, Exhibit of five or more boxes of McIntosh, Jonathan, Wagners, Grimes Golden or Winter Banana apples—1, J. F. Reason, Penticton, B. C. (McIntosh Reds); 2, Belgian Orchard Syndicate, Vernon, (Jonathans); 3, Paul de Wolff, Chilliwack, B. C. (Northern Spy).

Class 146, Exhibit of five or more boxes, any variety—1, Creston Fruit Growers' Union, Creston, B. C.; 2, Angleysey Estates, Walhachin, B. C.; 3, J. A. Nolan, Summerland and Calgary.

Calgary Exhibition Should Be an Annual Event, Says Pres. Abriel.

Calgary, Oct. 20, 1916.

To the Members of the British Columbia Fruit Growers' Assn.:

As president of the B. C. Fruit Growers' Association I have been looking over the advertising done by the Association here in Calgary in connection with the first Soils Product Exhibition, which was held on Tuesday, Wednesday and Thursday of this week, and from my observations in this province I feel that much effective advertising has been accomplished by having the display of B. C. apples at this show.

The staging of our fruits was done in a very attractive and striking manner, and speaking as an onlooker, one could easily see the exhibit from all parts of the Horse Show Building in which the exhibition was held.

Possibly more could have been done, but as it is a new idea to stage an apple exhibit whilst citizens of Calgary are holding a fair of their own in which the products of the Vacant Lots Garden Club predominate, it would be rather unfair for us to take the cream of the praise, but we accomplished this on the occasion although we had no intention of doing so. I know that every member of our association would have been proud to have seen this fine display of apples that was brought together for this

event by your markets commissioner, Mr. W. E. McTaggart.

I am informed that there was some disappointment at not being able to secure more apples for this work from the growers of British Columbia, brought about by several causes some of which were that apples shipped from interior points in British Columbia on October 7th, 8th and 9th were not received in Calgary in time to stage them on the 17th. These shipments were shipped by L.C.L. freight, coming a distance of slightly over 300 miles.

Further I have an idea that we as growers did not attach sufficient importance to the amount of advertising we would receive from a show of this nature. Those of us who thought along such lines as these have made a mistake, considering the small expenditure involved in an exhibition of this kind. I know of no other form of advertising in which we can obtain such excellent results at so little expense for the growers in British Columbia.

We must not think that this Soils Products Exhibition was a local affair, for stock sales were held every day, these bringing buyers and salesmen from many parts of Alberta and a number from Manitoba and Saskatchewan, from which you will see that this fair was more of a provincial event, and has established itself as an event in affairs of Western Canada. It afforded us an excellent chance to show the people of the prairie provinces what kind of apples we can grow in our prolific province.

The suggestion that I have to offer for the future is this: Let us make this Calgary Fall Fair an exhibition on a par with that which our neighbors south of the line have established with their Spokane Apple Show. We spend hundreds and hundreds of dollars in British Columbia on our own home local fairs—why not spend some money on an Apple Show that will practically take in a large part of the three prairie provinces, for is it not the prairies where we are placing the largest part of our apple crop? Considering the small amount of money necessary to stage an exhibit under such conditions as those which prevailed during the week, we must prepare to carry out this scheme every year.

I know of no other form of advertising from which our growers can get the same results as in this way, and it would be the very best kind of business for us to make this an annual event.

To me it looks as if this Soil Products Exhibition will as time goes on develop into one of the big fairs of Alberta, and if my forecasts are fulfilled, it behooves our association and the growers of British Columbia to keep pace with their end of the display.

In conclusion I must express myself as exceptionally well satisfied with the work done by your market commissioner, but, as in all things that are to be great, we must have the individual support from those who grow the fruits if it is our wish to make future exhibits bigger and better as the years go on.

THOS. ABRIEL,
President B. C. F. G. A.

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EDITORIAL

BACK TO THE LAND

It is undoubtedly a fact that during the last year there has been in Canada a trend of the population back to the land. This is true in a number of ways. The tendency is more marked in the middle west than in other provinces, but is not confined to that section. It is stated by railway officials interested in colonization that land settlement during the summer months has been better than at any time since the beginning of the war. The C. P. R. has been selling land at the rate of a million dollars a month. This in fact has been the biggest year for land selling the company has ever had. This in itself is a statement of extreme significance, but added to it is the fact that the British Columbia Government a few months ago put another block of land on the market for homestead purposes in the Fort Fraser District and so many settlements were made in by the Grand Trunk Pacific that it was decided to open up still more land, and this month the government opened up two more tracts of land in the central portion of the province. They contain 400 homesteads of 160 acres each. These new homesteads areas are near Fort Fraser, one tract being on the north side of the Nechaco and the other on the west side of the Stuart River.

The movement from the United States from all information which can be gained is becoming more marked every day, and British Columbia is getting a good share. So many prospective settlers come from south of the line that special parties were inaugurated some time ago by the C. P. R. The number of new comers availing themselves of these arrangements have been very satisfactory.

In addition to this movement from the States large numbers of Canadians are taking up farm lands, and many farmers are adding to their holdings, or men who came in some time ago to investigate are buying. The C. P. R. is at the same time engaged in preparing farms for soldiers. Considerable progress has been made in the laying out of these farms which will be in colonies in two or three different sections of the prairie provinces.

BOYS' AND GIRLS' CLUBS.

The rapid development of the juvenile agricultural club throughout the United States is the subject of frequent comment

in farm and other journals not only in that country but in Canada. The clubs are fostered and encouraged by the Federal department of agriculture in co-operation with the state department of agriculture. These clubs were first organized in the south in 1907, and in the north and west in 1912.

The following method of "finishing"

The enrollment in the south at the time the last season's contests were held included approximately 63,000 boys and more than 42,000 girls. Corn clubs among the boys and canning clubs among the girls are in operation in all the fifteen Southern States. Pig clubs are next in popularity, and are organized in all of the Southern States.

In the Northern and Western States the development of the various phases of the club work has been rapid. The clubs in operation include those devoted to the production of corn, potatoes, grain, sorghums and miscellaneous field crops; to the raising of poultry, pigs and sheep; and to such projects as home garden and canning, dairy and dairy records, sewing and housekeeping, cooking, home economics and bread making. The variety of projects is made necessary to meet the climatic, soil and cropping conditions of the various sections served. Only a few projects are promoted by the leaders in any one section.

Large profits secured by some of the corn club and potato club champions resulted from the sale of field-selected seed at prevailing prices. Some of the poultry club members made unusual profits by marketing eggs for hatching and birds for breeding purposes.

The total enrollment of boys and girls in the clubs in the Northern and Western States was 209,178. As the garden and canning clubs have a membership of both boys and girls, the separate enrollment does not appear from the general club records. There were nearly 123,000 members of these clubs alone.

There does not seem to be any good reason why such clubs could not be organized in this country, and that they could be made quite as successful as they are in the States.

DECREASE IN LIVESTOCK

Figures published by the Census and Statistics Monthly show the following decrease in live stock in Canada in 1916 compared with 1915: Horses, 5464; milk cows, 63,501; other cattle, 85,636; sheep, 73,561; swine, 297,228. These decreases are deserving of the attention of producers and consumers as well. Prices are likely to be higher.

WHY WHEAT IS UP

The average individual does not think there is any good reason for the present very high prices of wheat, and generally is disposed to attribute it to manipulation on the part of the dealers.

There is no doubt now, however, that there is a real shortage of wheat—that it will in fact run into many hundreds of millions of bushels. Conservative estimates place the world's wheat crop for 1916 at 3,572,000,000 as against 4,382,000,000 in 1915, or over a billion bushels less. The indicated surplus of the exporting countries is usually small, amounting to only 160,000,000 bushels, as against the estimated

world's import requirements, excluding Germany and Austria, of 536,000,000.

In North America the present indications are for a total wheat crop of 779,000,000 bushels, as compared with 1,487,000,000 for last year, a decrease of 708,000,000 bushels. Canada alone will have 181,700,000 bushels less to export than she had last year, the official estimate placing the Canadian crop at 160,000,000, as compared with 376,000,000 bushels last year. The Dominion's needs for seed and food consumption totals about 73,999,999 which will only leave an exportable surplus of approximately 118,000,000 bushels as against about 300,000,000 bushels last year.

The total wheat crop of the United States for 1916 is estimated at 611,000,000 as compared with 1,011,000,000 bushels last year. This is 30 per cent below the average for ten years, and will leave comparatively little wheat for export. The bulk of both the Canadian and American crop will grade poor.

These facts together with the added statement that the Argentine crop has been badly damaged by drought, made the phenomenal rise in wheat almost a foregone conclusion. There is no doubt that there is manipulation and that this does account for some of the increase, but certainly not all of it.

WILL TAKE TEN MONTHS

It has been claimed by army men that it will take over ten months to transport the Canadian army back to Canada, and Lord Shaughnessy in an interview in Winnipeg confirms this at least to the extent of saying that even if there is a movement of European population toward Canada it could not be handled, because it will take some considerable time to get the troops back, "and besides," he adds, "there will be a great deal of preliminary adjustment in Europe."

This fact should not, however, cause any slackening in preparations for the closing of the war, because even if the arrival of the Canadian troops home were delayed for three years, we would still not be more than properly ready to face the problems which will come to us then.

NOT A SACRIFICE

The celerity with which the last Dominion War Loan was taken up was doubtless due in a measure to the patriotism of the people, and in the floating of the loan this appeal was not neglected by most of the agents. But looked at from a purely business standpoint the new security was an extremely good one for all those who participated in it, and who were practically all investors with accumulated funds for which they needed a remunerative investment which they could be sure would be safe.

There was heard a great deal of absurd talk about this loan as if it represented some gigantic sacrifice on the part of the subscribers, when the fact was the buyers were getting a gilt edged bond at a lower price than they could get anything else of equal safety. This is shown by the fact that neutral buyers, who could not have been actuated by love of Canada, were quite keen to get in on the flotation. The new loan yields a better profit than nearly all the high-class municipal bonds and is infinitely safer.

FARMERS SHOULD BE REPRESENTED

Certain farmers' organizations are indignant at the action of the Dominion Government in having the agricultural interests represented by the officials of the Federal and provincial departments of agriculture at the big convention to discuss ways and means of meeting the critical industrial conditions which are expected to prevail after the war, while other interests such as manufacturing, transportation, banking, fishing, lumbering, mining, etc., are to be represented by men from those various industries. Formal protests are being filed with the government against having the farmers represented in that way, and with apparent justice. There surely can be no good reason why a selection cannot be made as easily as they could be made from any of the other interests mentioned and it is difficult to understand why the government should have taken such an attitude.

A convention thoroughly representative of all classes in the country ought to be able to do a great deal of good in the formulation of plans and setting in motion of influences which will assist in meeting the changed conditions which are almost sure to come with the conclusion of the war. And certainly of all classes it is most important that farmers be properly represented. Every one believes that if the returning flood of soldiers and the expected tide of immigrants are to be properly taken care of a great proportion of them must be placed on the land, and the practical farmer of all others is the man who would be able to give the soundest advice—make the most practical suggestions as to what would be necessary to be done to render the success of the new settlers as reasonably sure as could be. We have thousands of farmers in our country who came in as pioneers. Starting with very little they have made good, and they know almost exactly what conditions the new comer will have to meet; the things he will need and the things he will need to avoid.

The possibility of conflict between the farmers and the manufacturing interests on the question of the tariff and other things has been suggested as a reason why the farmer was not to be invited, and it is even suggested that the convention may not be held because of this fear. But surely the consideration of the tariff is a matter which could easily be left out of such a convention, and even if it was found necessary to take it there is not much reason why it should cause any serious division.

By all means have the convention and by all means get as many farmers present from as many quarters of this broad Dominion as possible.

WILLIAM J. BRANDITH

The recent death of Mr. William J. Brandith, farms commissioner for the province, will be sincerely regretted by every one in British Columbia who knew him, and especially by the fruit growing interests. He was a man of intense optimism, and great public spirit—always on the lookout for and eager to put forward anything that would tend to the benefit of the province he loved so well. He had an enthusiasm for his work. He believed in British Columbia and he sought to persuade others to believe in it. He wore himself out in the service of the province, but he set an example in faith and enthusiasm for its development which cannot be too highly commended.

PREMIER SCOTT RESIGNS

Premier Scott of Saskatchewan, has resigned. Ill-health is given as the reason for his resignation. It has been known that for a number of years Mr. Scott's health has been such that he has been disposed to consider his own health rather than the public service, he would have resigned his onerous position long ago.

There is no question at all that his resignation will be regretted sincerely by all the rank and file of his party, and by not a few of the opposition. He will be remembered and appreciated particularly for the splendid work he has done in the interest of agriculture. The growth of co-operative enterprise among the farmers of his province has been especially marked during his term of office, and a host of friends will hope that the rest he has so well earned will be all he needs to again bring back his lost health.

OUR TRADE WITH RUSSIA

The trade between Vladivostok and Vancouver is enormous. It is of course largely war material, but there seems to be no good reason why in Canada this trade should not continue and increase after the war. Canada has at present two trade commissioners in Russia, and, though he did not say it was the present intention to appoint others, remarks made by Sir George E. Foster when in Vancouver recently indicated that something might be done in that connection.

SOLITUDE OF THE FARM

The comparative solitude of farm life is accountable to a large extent for the tendency of the young men and women of the farms to drift to the cities. Man is a gregarious animal. He loves the companionship of his kind. There are natural recluses in the world, but only a few. The man who is so constructed that he has ample resources within himself for his own enjoyment is the exception and not the rule. Of such material have been made some of the grand characters in history, but unfortunately but few of us possess the necessary intellectual and spiritual framework to enable us to stand alone. Men do go on long prospecting trips and cut themselves off from their kinds for months, but it is nearly always with the idea of "striking it rich," and making a speedy return to civilization, where they can surround themselves with friends and, with wealth gained by sacrifice, enjoy themselves. There is undoubtedly a lure in the wild, but a few weeks in the woods usually satisfies unless there is added incentive of gain. What miner does not dream of the happy days to come! Few give themselves unreservedly to the solitudes, with no thought of different days.

There is no question at all that the financial position of the average farmer is infinitely better than that of the average working man or the average business man. The life in many cases is a grind, but it is not greater than that of men in other walks of life, and if the element of solitude could be eliminated in some way—a better social life introduced, there would be no difficulty in keeping the young men on the farms and in making the "back to the land" movement a real one.

European farmers illustrate the tendency to get together by the communities they have built up, the villages in which they dwell and from which they go forth to their daily work in the fields. Small hold-

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ings make this life possible. In a country where a quarter section of land is not a large farm and where a real farmer owns a section or more, the reason why he and his family must live almost by themselves is clear. But this would not be so bad. The difficulty in this country is the magnificent distances which separate so many of our farmers. This is especially true of the prairies, where many farmers do not see a neighbor for days at a time. The advantages of community life is called attention to in an article in another column on "Military Colonization," and if the life on the farm is to be popularized as it should be, this question of grouping our future settlers must be faced and solved.

Governor Brunbaugh, of Pennsylvania, has been preaching the back-to-the-soil propaganda vigorously and he offers as a suggestion that young men of the cities seek wives among country girls and that instead of taking their brides to town they move out into the country. It is a pleasing theory, and ought to prove practical. The fact is that a great many people like to lean on another; it is the spirit that we call clannishness in a foreigner who associates himself with the only ones who can speak or understand their common language, but which, while professing to decry, we possess in a large measure ourselves.

This is an important and real reason for the drift of population to the centres. The comforts and conveniences of civilization

may be on the farm pretty much what the energy and enterprise of the farmer make them, but unless the average man and woman have opportunity to enjoy the society of congenial fellow human beings they are going to be discontented and farming as an industry will suffer the inevitable consequences.

PLUNGING INTO PEACE

Rebounding from two years and more of the most destructive and wasteful war in history, the world will plunge into a trade and economic contest in which forces will assume totally new alignments, when competition will be keener and stronger than ever, and when science and organization will play a leading part in any successful role. For this struggle Canada must gird up her loins and make ready her full equipment of preparedness. She has the advantage over many other countries in richness and abundance of resources, in geographical world position, in vigor of race and in robustness of intellectual world position and moral fibre, while hope, verging on pronounced optimism, is an abiding and stimulating force with our people.

"I doubt however if we yet sense adequately the unnatural situation in which we have become involved, or to the wrench and strain that will accompany the resumption of our natural and normal position.

"The question which it seems to me each should face is this: 'What will be the situation as regards our industry in Canada when the war ends and how can we best meet it?'"—Right Hon. Sir George E. Foster in his Call to Action.

WONDERFUL PLANTS

Plants do not think, observes a keen student of nature; yet without thinking they carry out very elaborate plans for getting food, for fertilizing themselves with the aid of bees and other insects, for guarding the seeds until the right moment, for scattering them, with the aid of the wind, water, birds and animals, and for insuring their germination.

Some plants set traps of almost inconceivable ingenuity, depending on what would seem to the casual observer as absolute knowledge of bee psychology.

Plants fit their environment just as well as men fit theirs, and, perhaps, somewhat better.

The results that we get by taking thought they get in some other way, fully as mysterious as human thought, and possibly of as high an order in the scheme of the universe.

A flower serves its purpose, which is to live and to propagate its kind, and man, biologically, can do no more. Flowers, wild and cultivated, probably grow more complex in their organization and functions as the ages pass; no less and no more can be said of men.

Plants fight with their kind and with other forms of being for the gift of life, and so does man, although—as one is tempted to say—with less intelligence.

The thought of these things quenches arrogance and gives the lie to pessimism. What are our petty doubts and sorrows?

In us and in the humblest weed is the same inextinguishable life force, moving, whether purposeful or not, as though it had a purpose.

MORE LIGHT

Light is free, but, judging from the size and number of windows in stables that

were built a quarter of a century ago, the impression is given that it is an expensive luxury. Stockmen are beginning to realize that light and sunshine in the stable aid in keeping things sweet and clean, and tend to keep down disease. Apart from this, it is much more pleasant doing chores in a well-lighted stable than in a dark one. Animals require light and sunshine during the six months they are stabled, the work is facilitated by having it, and the health of the animals is improved. The direct rays of the sun are powerful enough to destroy practically all disease germs that commonly lurk in dark stables. The number and size of windows required in a stable depends on location, amount of stock housed, and the thickness of the walls. Stables that are built today usually have a large number of big, deep windows. As more light comes from the upper portion of the sky than from the horizon, a window long up and down admits more light than one of similar size placed horizontally. In order to give ventilation, some have the windows hinged at the bottom so they will open in at the top. This permits fresh air to enter without causing a direct draft on the stock. If the window sash is in two sections the upper part may be made to open inward. As a rule windows on hinges are much more easily opened than those made to slide.

Before winter sets in, the windows in some of the old stables could be enlarged. An expert mason or carpenter is not required; any handy man can do the work. The window frames and sashes can be secured from the planing mill, and they can be put in by the farmer himself. If the wall is of stone or concrete the opening can be enlarged to the desired size, the frame set in position and the wall built to

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it with concrete. Boards fastened around the frame will hold the gravel and cement in place until they harden. More light can be let into the stable at very little expense. Arrange to have plenty of light on the south side of the stable so that direct

sunshine may enter. Sunshine, light and fresh air are necessary if stock is to be kept in a healthy condition and give the largest possible returns for feed consumed. Why allow your stock to spend the entire winter in a dull, poorly-ventilated building, when both fresh air and light will enter freely if given a chance? It pays the stockman to have plenty of large windows in his stable.

CANADIAN REVENUE

The revenues of the Dominion for the past six months reached a total of \$103,000,000, or \$30,000,000 in excess of the same period last year. The estimated revenue for the year is \$220,000,000, out of which over fifty million dollars will be devoted to war expenses.

Trade for the first five months aggregated \$791,000,000, compared with \$399,000,000 for the same period last year.

The bank deposits of August are \$1,250,000,000, and increase of \$250,000,000.

The finance department announces that a plan will be devised whereby the investing public will be given an opportunity of investing in Dominion treasury debentures pending a new war loan.

MAKING THE COWS PAY

Look out for the free boarder, says The Pacific Dairy Review, referring to the fact that this is the time of year when many dairymen will begin the feeding of concentrates. This is an expensive part of the dairy business and one in which it is easy to lose money in these days of high-priced foodstuffs. The unresponsive cow must be looked out for. She will eat your bran, your middlings, your oil meal and the other good things, pass the hay and give you a small yield in return.

When you go down the feeding alley with high-priced feed this fall don't give every cow the same measure. Ask yourself the question—will this or that one pay for it? Don't expect that you can force milk out of the cow with low producing capacity by heavy feeding, or the cow that will go dry despite the feed you allow her. Then there is the cow that is right in the height of her milking power—is she being fed to sustain her full milking capacity?

It comes right down to the principle of not treating all cows the same, but of feeding them according to their capacity to utilize feed. You say that this is impossible and impractical. But is it? Did you ever try this plan? First of all, get a milk scale and hang it in the stable. Place near it a sheet of paper and a pencil. For one or two milkings spend a few minutes and weigh the milk of each cow and record it on the sheet. Now make a substantial increase in the feed allowed to each cow for a few days and again take the weights. Compare them with the previous weights and see which cows gained. Make another increase and note the results.

Now you are ready for the next step. Cut down the feed from those that failed to respond and keep cutting it down until you notice a shrinkage in their milk, and at the same time keep increasing it to those that come up in their yield. You are now on the right track. You are locating those cows that waste feed, and finding out those that will make returns for it. It takes work. Yes, some; but what do a few hours a day amount to when you are finding out the cows that are wasting high-priced feeds by the ton?

What is an Internal Bath?

By R. W. BEAL

Much has been said and volumes have been written describing at length the many kinds of baths civilized man has indulged in from time to time. Every possible resource of the human mind has been brought into play to fashion new methods of bathing, strange as it may seem, the most important as well as the most beneficial of all baths, the "Internal Bath," has been given little thought. The reason for this is probably due to the fact that few people seem to realize the tremendous part that internal bathing plays in the acquiring and maintaining of health.

If you were to ask a dozen people to define an internal bath you would have as many different definitions; and the probability is that not one of them would be correct. To avoid any misconception as to what constitutes an internal bath, let it be said that a hot water enema is no more an internal bath than a bill of fare is a dinner.

If it were possible and agreeable to take the great mass of thinking people to witness an average post mortem, the sights they would see and the things they would learn would prove of such lasting benefit and impress them so profoundly that further argument would be unnecessary to convince them. Unfortunately, however, it is not possible to do this, profitable as such an experience would doubtless prove to be. There is, then, only one other way to get this information into their hands, and that is by acquainting them with such knowledge as will enable them to appreciate the value of this long-sought-for health-producing necessity.

Few people realize what a very little thing is necessary sometimes to improve their physical condition. Also they have almost no conception of how little carelessness, indifference or neglect can be the fundamental cause of the most virulent disease. For instance, the universal disorder from which almost all humanity is suffering, known as "constipation", "auto-intoxication", "auto-infection" and a multitude of other terms, is not only curable, but preventable through the consistent practise of internal bathing.

How many people realize that normal functioning of the bowels and a clean intestinal tract make it impossible to become sick? "Man of today is only fifty per cent efficient." Reduced to simple English this means that most men are trying to do a man's portion of work on half a man's power. This applies equally to women.

That it is impossible to continue to do this indefinitely must be apparent to all. Nature never intended the delicate human organism to be operated on a hundred per cent overload. A machine could not stand this and not break down, and the body certainly cannot do more than a machine. There is entirely too much unnecessary and avoidable sickness in the world.

How many people can you name, including yourself, who are physically vigorous, healthy and strong? The number is appallingly small.

It is not a complex matter to keep in condition, but it takes a little time and in these strenuous days people have time to do everything else necessary for the attain-

ment of happiness but the most essential thing of all; that of giving their bodies their proper care.

Would you believe that five to ten minutes of time devoted to systematic internal bathing can make you healthy and maintain your physical efficiency indefinitely? Granting that such a simple procedure as this will do what is claimed for it, is it not worth while to learn more about that which will accomplish this end? Internal Bathing will do this, and it will do it for people of all ages and in all conditions of health and disease.

People don't seem to realize, strange to say, how important it is to keep the body free from accumulated body-waste (poisons). Their doing so would prevent the absorption into the blood of the poisonous excretions of the body and health would be the inevitable result.

If you would keep your blood pure, your heart normal, your eyes clear, your complexion clean, your head keen, your blood pressure normal, your nerves relaxed, and be able to enjoy the vigor of youth in your declining years, practice internal bathing, and begin today.

Now that your attention has been called to the importance of internal bathing, it may be that a number of questions will suggest themselves to your mind. You will probably want to know WHAT an Internal Bath is; WHY people should take them, and the WAY to take them. These and countless other questions are all answered in a booklet entitled "THE WHAT, THE WHY and THE WAY OF INTERNAL BATHING", written by Doctor Chas. A. Tyrrell, the inventor of the "J. B. L. Cascade", whose lifelong study and research along this line makes him the pre-eminent authority on this subject. Not only has internal bathing saved and prolonged Dr. Tyrrell's own life, but the lives of multitudes of individuals have been equally spared and prolonged. No other book has ever been written containing such a vast amount of practical information to the business man, the workers, and the housewife. All that is necessary to secure this book is to write to Dr. Tyrrell at Room 895, 163 College Street, Toronto, and mention having read this article in Fruit and Farm and same will be immediately mailed to you free of all cost or obligation.

Perhaps you realize now more than ever the truth of these statements, and if the reading of this article will result in a proper appreciation on your part of the value of internal bathing, it will have served its purposes. What you will want to do now is to avail yourself of the opportunity for learning more about the subject, and your writing for this book will give you that information. Do not put off doing this, but send for the book now, while the matter is fresh in your mind.

"Procrastination is the thief of time." A thief is one who steals something. Don't allow procrastination to cheat you out of your opportunity to get this valuable information which is free for the asking. If you would be natural, be healthy. It is unnatural to be sick. Why be unnatural, when it is such a simple thing to be well?

Beekeeping in British Columbia

By WILLIAMS HUGH

NOTES.

"The well-attended meeting of the newly formed Beekeepers' Association of B. C. at Vancouver Fair, August 17th, showed that the district contained many active beekeepers who have faith in their climate."—The Canadian Beekeeper.

Mr. F. W. Sladen hopes to be able to estimate the productiveness in honey of selected localities in different parts of Canada by averaging the returns of a number of successive years by means of co-operative experiments with experienced beekeepers located in them. Such information should be of especial value to trained and experienced beekeepers who may be seeking a more profitable location than their present one, and the immediate result would be the overcrowding of an area that may profitably give a few men a living, and starve double the number.

The time is ripe in British Columbia for the Provincial University to commence a "short course" in beekeeping. If the university is not in a position to handle it, then, the department of agriculture might take the question into consideration. A little systematic study under experienced teachers will save those anxious to begin beekeeping a lot of blundering and discouragement in the future. It pays Ontario to give its people a free "short course" and it will pay B. C.

California State beemen are working for a higher tariff on honey, and a grading standard for extracted honey. Two objects worthy of consideration by B. C. beekeepers in their own interests.

WINTERING PROBLEMS AND EXPERIMENTS.

In the "Fruit and Farm" Magazine for April last, Mr. Brooks gives the results of several experiments in wintering bees, one of which was very remarkable. He states that "Hive No. seven was placed above a full depth of empty combs, resting on the bottom board, and arranged in such a manner as to have the combs in the hive proper run across the lower combs and not parallel with them as is customary. There was no packing whatever used on this colony." The result of this experiment Mr. Brooks says was as follows: "No. seven wintered over the empty combs was a surprise as they had no protection and the winter was about as severe as bees in British Columbia will ever have to weather. On taking off the cover the writer expected to find everything at its worst but he found four frames of brood in the hive and bees in every frame except the two outside ones and in splendid condition." With reference to this experiment and the result I should like to say that out of some hundreds of hives I examined last spring in this territory I noticed that in every instance where the bees had been wintered on two sets of combs, one set above the other mostly in eight framed hives, that the bees had come through in fine condition, in spite of the severe winter. In several cases the outside protection consisted only of two or three thicknesses of building paper and tar paper wrapped round the hives. Although it has been noted before that bees will winter better in two storeys than one it had

never been brought so forcibly to my personal notice as last spring. I think it is very important to give this plan an extended trial during the coming winter and would suggest trying twelve combs for strong colonies, six above and six below, putting the stored combs at the top. The sides can be protected with packed dummies. The probability is that a deep cluster in the winter is better for the bees than a wide one ensuring better ventilation and more perfect insulation by the bees on the outside of the cluster. Bees in a state of nature, in the restricted area of a hollow tree would generally have no alternative but to cluster in this manner, and "Old Dame Nature" may turn out to be our best guide in solving the question of successful wintering after all.

W. J. SHEPPARD,

Nelson, B. C.

THE SOURCE OF HEAT IN THE COLONY DURING WINTER.

Dr. E. F. Phillips of Washington, D. C., in an address before the members of the Ontario Beekeepers' Association, November, 1915, said: "It is a well known fact that bees generate heat during cold weather, so that the temperature of the cluster never drops very low. The lowest temperature that we have found is 57°F. In order to see what the bees do during this period of heat production, we devised a special outfit so that we could see the inside of the cluster. A colony in winter forms a compact, approximately spherical cluster and on the outside of the cluster there is nothing that one can see that suggests the heavy heat production that must take place. However, a narrow hive was provided, with double glass sides and top, with an air space between the sheets of glass to act as an insulation. The stores were then so arranged that the only place available for the cluster was next to the glass on one side. In the outside space were placed a number of the electrical thermometers which are briefly described in Bulletin No. 93 of the department of agriculture, to which those interested are referred. In the space provided there was not room for a spherical cluster so the bees formed a hemisphere, the equator of which was against the glass. This showed the centre of the cluster.

"It was then clearly demonstrated that the cluster is not uniformly compact. The cluster consists, between the combs and sometimes above and below them of an outer shell of bees packed close together, with their heads towards the centre. The thickness of this ring varies with the weather being thicker when the outer temperature is warm and when less heat production is needed, and becomes thinner with the increase in heat production. This is because when more heat is produced more bees are needed for this work leaving less for the outer rim.

"In order to expose this colony (Colony C) to rapid changes in temperature, the hive was placed on the roof of the building, and while one person watched the bees another read the temperatures in the room below where the instruments were located. A telephone was installed, so that the two persons could be in constant communication, head pieces being used, so that the hands of both observers were free. The

observations made on the roof were then given over the telephone and all records were made below. This colony was of course in the light, but the normal cluster was nevertheless observed. The colony was disturbed as little as possible during the observations to eliminate abnormal conditions. The nearly spherical cluster of bees exists, between the combs and sometimes above or below them, of an outer shell of bees close together, with their heads towards the centre. This ring may be several layers thick. The position with the heads inwards is typical, except when condensed moisture drops on the cluster, as it often does in cool weather, when the bees at the top turn so that their heads are upward. The bees in this outer shell are quiet, except for an occasional shifting of position. Inside this rather definite shell the bees between the combs are not so close together, nor are they headed in any one way. Considerable movement, such as walking, moving the abdomen from side to side, and rapid fanning of the wings, takes place inside the sphere, and when a bee becomes unusually active the adjoining bees move away, leaving an open space in which it can move freely. Two bees may often be seen tugging at each other. For addition to the bees between the combs, placed as above described, others are in empty cells of the comb on which the cluster is always formed, always with their heads in. A verification of these statements is contained in the following observations, and the experiment may easily be repeated by anyone. For the purpose of obtaining a colony without combs for another experiment, a hive was opened December 15, 1913, while the outside temperature was low enough to cause the formation of a compact cluster. When the combs were separated the circle of bees in the shell was clearly observed. When a comb from the centre of the cluster was shaken the active bees in the centre of the circle dropped off readily, and those in the outer shell which were somewhat sluggish were removed with more difficulty. After this was done those occupying empty cells in the centre of the sphere backed out of the cells and were shaken off. Finally those occupying cells in the border of the sphere backed out, showing a well-marked circle of the combs. Evidently the bees in the shell, whether in the cells or between the combs, are less active than those in the interior of the cluster. Naturally such a manipulation as this is not to be recommended, except for purposes of demonstration. It is clear that the highest temperature is in the centre of the shell, and this is to be expected, as the heat is generated here. The outer shell constitutes an ideal insulator for the conservation of heat, since the bees arranged so close together form small dead air spaces in their interlacing hairs, especially those of the thorax, and afford still more insulation with their bodies. The abdomens of the bees in the outer row are positively separate one from another, and must often be exposed to severe cold. The source of the heat of the cluster must, of course, be the oxidation of the food consumed by the bees. The bee is classed as a cold-blooded animal, one that the temperature of the individual bee is practically that of the surrounding medium. There is obviously, from records given, no internal regulation of the temperature of the body, such as is found in birds, and mammals, for the temperature of a broodless cluster varies greatly. From the observations made on various colonies, it is clear that heat for the warming of the cluster, is provided by muscular activity. While, of course, some heat is

doubtless liberated by other life processes, this is practically negligible when bees are quiet. That higher temperatures may be produced, greatly increased muscular activity is required, and in cold weather bees in the centre of the shell of insulating bees were seen fanning vigorously and executing other movements, such as shaking and rapid respiration. We thus have the paradoxical conditions that bees fan to heat the cluster in winter as well as to cool the hive in summer. This theory of the method of heat production is entirely supported by the repeated observations of a humming noise from the cluster during cold weather."

KOOTENAY BEEKEEPERS' ASSOCIATION.

The annual report of the above has just been issued. Mr. W. J. Sheppard, the able hon. secretary-treasurer, states: "The season just passed has been a favorable one for the bee-keepers in the Kootenays, there having been a good yield of excellent honey. The outlook in the spring was not very bright as the bees had wintered badly, mainly owing to the poor quality of the food stored the previous winter. Sugar being up high in price the bees also suffered on that account in many instances. Very little artificial feeding will be necessary this fall and the presence of sufficient wholesome natural food in the hives will cause better wintering results to be looked for with stronger colonies at the commencement of next season. Much could be done by members in improving and extending the sources from which nectar is gathered by the bees, and so increasing the general honey yield, by persuading their friends and neighbors to grow alsike in place of red clover, wherever possible. Fortunately the white or Dutch clover, our most important honey plant, has become firmly established in the Kootenays, and is spreading everywhere, which will have the effect of increasing our honey crops and making them more certain. When planting shade trees select the European and American lindens and the black locust, all of which yield nectar." There are now 83 members in the association.

HONEYDEW

The past season, or rather the tail end of the season, has been remarkable for the amount of honey dew the bees have gathered. The word honeydew is a misnomer as it is not a flower secretion at all; neither is it a dew. It is a secretion of a number of plant lice and is commonly found on the leaves of various trees, the common alder being one of them. In and around Vancouver the bees were busy gathering honeydew, immediately fireweed was over, and some colonies had as much as 75 pounds of it in the supers. A neighbor of mine called my attention to the huge amount of honey his bees had given him this season. On examination it was found to be at least 60 per cent. honeydew, and quite unfit for sale or consumption by anyone who knows the fine flavor of B. C. honey. The stuff is insipid, gummy, dark even to inkness, and hangs from a spoon more like glue than anything I can compare it with, and spoils the fine flavor of our honey if ever so slightly mixed.

It can be readily recognized even when capped, as the cappings are very yellow and have a suggestive smell, and where it is not capped it is suggested in appearance.

To sell such a commodity is courting disaster for future sales, and any member of the Beekeepers' Association who can use

his influence to prevent it from getting on the market should do so. The writer has already seen some bad samples on display in grocers' windows, which are found to reflect on the quality of our honey. Honey should be taken from the supers when the flowers cease to yield nectar and are capped over, which is usually in August on the Lower Mainland. Now, a word on wintering bees on honeydew stores. Strange to say honeydew is just as good as honey for producing young bees, but needs considerably more digesting by the bees on account of the preponderance of solid matter it contains in the shape of gums and vegetable matter. Therefore, feces accumulate quickly in the intestines of the bee, and unless the weather is fairly open and flight can occur every, at least, three weeks the colony is sure to suffer, and if a prolonged bad spell of weather should occur they may never survive it.

Should one have several combs of good honey these can be placed near the centre of the hive and the combs of honeydew removed until spring, when bees can fly every day. Or two combs of honeydew can be put right in the centre of the brood nest and the good honey on the outside of these for by the time the weather gets bad, say about New Year, most of the honeydew will have been consumed, and they will have the good honey for the worst part of our winter. If combs of honey are not available, five-pound blocks of pure sugar candy should be placed over the brood nest, where the cluster can readily reach it, for they will take candy in cold weather when they will be loath to uncap stores.

JOHN BROOKS.

MESSRS. WM. RENNIE CO. LTD. OPEN NEW STORE

Messrs. Wm. Rennie Co., Ltd., whose seeds are well known throughout Canada, have opened a new store at 872 Granville Street, which is second to no other in Can-

ada, and in so doing are demonstrating their explicit faith in the future of Vancouver and British Columbia.

This firm was originated by the late William Rennie, in January, 1870, and the greatest proof of their successful business career is seen today in the chain of stores they operate throughout the largest cities of the Dominion.

The Vancouver store, to take care of British Columbia customers, was opened in October, 1905, by Mr. R. J. Rennie, on Hastings Street, and after five years on Hastings Street they were obliged to seek more commodious offices, so moved to 1138 Homer Street.

The offices and wholesale department will still be located at 1138 Homer Street, the new store at 872 Granville Street being mainly to care for the Vancouver city trade.

The president of the company, Brigadier-General Robert Rennie is serving his country at the front, having left Toronto in charge of the 3rd Battalion at the commencement of the war, in August, 1914.

Mr. R. J. Rennie is still in charge at Vancouver.

MR. FRUIT SHIPPER:

Do you know that SWARTZ BROTHERS, 155 Water Street, Vancouver, B.C., sell more fruit for the British Columbia Farmer than any other commission house in Vancouver, B. C.

WHY?

Because it is the home product that the people want. We aim to please our customers and help the B. C. Farmers.

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Give us a trial with your next shipment of fruit and be convinced.

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SUPPLIES

Gardening for the Home

By H. M. EDDIE, F.R.H.S.

(Our readers are invited to submit any troubles or difficulties which they may encounter, to Mr. Eddie, who will be glad to give them his advise, the outcome of technical training and practical experience. Address letters to the Editor.—B.C. Fruit and Farm Magazine.)

Flower Garden.

On the Lower Mainland of British Columbia the weather in November is usually well suited for planting most hardy plants, but in the colder districts, planting is better deferred until spring. The earlier in the month this is done the better, as there is still enough heat in the earth and growth in most plants left to encourage them to take possession of their new quarters before winter; an advantage well worth striving for.

The exceptionally fine and dry weather we have had this fall has delayed the planting of the biennials; wallflower, Canterbury bells, etc., and these ought to receive first attention. By the time this appears we will likely have had sufficient rain to soak the ground, which at time of writing is too dry for planting unless artificial watering is practicable.

Next to the biennials comes the herbaceous or hardy border plants. Early planting of these is an essential point in successful fall planting, especially if the plants used are divisions of old ones, so that there may be enough energy left to repair the unavoidable damage done to the roots and underground stems when separating them from the parent plants.

With fleshy rooted plants a strong knife is the best tool to use when dividing up old plants, while the spade or even the hands can be used on fibrous ones. If an entirely new herbaceous border or bed is contemplated, it is a good plan to thoroughly trench the soil to a depth of two feet or more, anyway at least twice the depth of the spade. Many of the plants in this group are naturally deep rooting and to them deep cultivation is an essential. If the soil below the first spade is not very good it must not be brought up to the surface, and the good soil turned underneath, but must be turned over in the bottom of the trench, and if possible mixed with humus of some kind, such as the accumulation of grass mowings, weeds, leaves and refuse of any kind from the kitchen garden so long as it does not contain anything of a woody nature.

Bone meal or basic slag mixed with the bottom spading will also prove a great benefit at the height of the season, when most plants are making their supreme effort to produce the largest spikes of flowers possible. Besides this fertilizing of the lower stratum I would also recommend a liberal dressing of well decayed manure, well incorporated with the upper spading; this is much preferable to digging holes and putting in the manure in lumps underneath the plants; the roots are thereby induced to run through the whole of the soil and many advantages accrue.

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In planting, holes must be made large enough to receive the root system of the plant without having to twist and crumple it, and care must be taken to get them at their proper depth neither too deep nor too shallow, a good guide being to plant at just the same depth as they were growing at before. Where it is intended to plant clumps of delphiniums, poppies or other stocking plants in special positions it will be well to give the soil the same attention advised for the border.

Planting the Roses.

Next in order of planting comes the rose; and, as the recognized "Queen of the Garden" preparation in keeping with the status of such an august floral personage must be made.

As the rose bed or border is likely to be more or less permanent in the garden, no pains ought to be spared in its preparation. Drainage is of first importance and should there be danger from stagnant water at any time of the year, steps must be taken to prevent this state of affairs. Much will depend upon circumstances, and it may be necessary to place a six-inch layer of small rocks in the bottom of the bed, say two and a half feet below the surface, it of course being necessary to remove the soil to this depth from the bed first.

This layer of rocks must have an outlet of some kind to a regular drain or waterway, and may also be made of rocks; and before returning the soil a thick layer of straw ought to be placed over them to prevent the small particles of soil getting down between them and clogging the drainage.

The above treatment must only be resorted to in extreme cases, for it must be remembered that the rose loves a cool, moist soil. The soil which seems to best suit the rose is a fine grained sandy loam.

In extreme cases it may be necessary to introduce fresh soil entirely, but in most cases the native article can be improved by judicious fertilizing.

Barnyard manure well decayed will make a heavy soil lighter, and a light soil more compact and retentive of moisture.

Some writers advise digging the soil to a depth of three feet or more, but personally I find that two feet is ample; it is not advisable to entice the roots to a greater depth.

The soil therefore ought to be trenched at least two feet deep, and be well mixed with a fertilizer of some kind; if it is already well supplied with humus an artificial composed of half and half bonemeal and wood ashes may be given at the rate of 10 pounds per cubic yard; but if the soil is sandy or gravelly the domestic by-product is the best, but no matter what is used let it be well mixed through the whole depth of soil, so that the plants may not be treated to a "feast and a famine." In setting the plants, see that the holes are large enough to receive the roots without bending and spread the roots evenly round the plant, if the roots branch away from the main stem in horizontal layers, as they often do on certain stocks, plant them accordingly, and not bunched together.

The proper depth to plant at is to have the union of bud and stock one inch below the surface; tread the plants in firmly and if the tops are large enough to endanger the stability of the plants in wind storms, cut back about half way and leave the regular pruning until spring. Following the roses all kinds of ornamental trees, shrubs, fruit trees and bushes may be planted. I have left little room to deal with those at any length, and will merely say that a little labor and a little manure



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will go a long way in giving newly planted trees of most kinds a good start in life.

In the fruit garden this is a good time to spray for canker in apple trees and mildew in gooseberries, using Bordeaux mixture, winter strength, in both cases.

For wooly aphids on apple trees spray with kerosene emulsion with a high pressure pump.

In the vegetable garden all vacant spaces ought to be dug and thrown up roughly to the frost; this will increase the fertility of the soil and help to rid it of various hibernating pests.

N. M. EDDIE, F.R.H.I.

Culture of Bulbs in Bowls

The culture of bulbs in bowls without drainage in fibre is exceedingly popular and very simple. The majority of bulbs are suitable for this purpose, and the many designs of pretty and chaste basins and bowls offered for this purpose add greatly to the artistic effect of plants for room and table decoration.

Cultural Notes

Fill the bowl to about two inches from the top with fibre compost, then fill up with water, allowing it to remain a few minutes until the compost is thoroughly soaked, then drain off the superfluous water by tilting the bowl on its edge, leaving the fibre fairly moist; this will be sufficiently damp till growth is established. Upon this place the bulbs, almost close together, keeping the tops level with, or above, the edge of the bowl, and fill up with more fibre to about half an inch from the top of the rim, pressing it firmly round the bulbs, but taking care not to get the fibre underneath too firm, otherwise the delicate roots will be unable to penetrate into it and the bulbs will be forced upward. Put the bowls in a dark, airy basement, or cool cupboard, for six or seven weeks to encourage root growth; when the shoots are about an inch above the compost remove to the light. As the buds burst into flower rather more water will be required, but care must be taken not to allow the compost to become too dry nor sodden.

Freesias and Lily of the Valley are exceptions to the general rule, and do not require to be placed in the dark to stimulate root action. They should be placed in a light, sunny position from the commencement, and in the case of Freesias, if potted early in September they may even be left out of doors for a few weeks with advantage.

The best medium for the cultivation of bulbs in fancy and ornamental bowls without drainage, is composed chiefly of selected granulated peat, with a proportionate quantity of oyster shell, charcoal and other stimulating and sustaining ingredients.

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POULTRY SECTION

ARTIFICIAL INCUBATION

(By M. K. BOYER, Hammonton, N.J.)

For successful work it is necessary to have good incubators, good eggs and good commonsense management. The same directions that apply to one will not necessarily do for another make. Neither can the same directions successfully fit all conditions. But there are some matters that will generally apply to all incubators.

In the first place the machine should be strongly built of well-seasoned lumber. Next, it should be located in either a well-ventilated dry cellar or in a double-walled room above ground.

The first proper step to be taken is to carefully follow the directions as given by the manufacturers. One or more hatches may be necessary to note whether the directions fit your conditions. If not, then there can be gradual changes made as might be suggested.

Important rules to remember are:

Fill the lamps each evening, and never use oil of less than 150 degrees test.

Always begin a hatch with a new wick.

Keep the temperature of the egg chamber as near 103 degrees as possible, and keep the incubator away from the sunlight.

Test on the seventh and fourteenth day. Study the air cells of the eggs to determine if moisture or ventilation is needed.

After the fourth day turn the eggs night and morning up to the eighteenth day.

Keep the burner clean from dirt, and scrape the charred part off the wick in preference to trimming it.

Never turn up the flame of the lamp so that it will smoke.

In placing the eggs in the machine have the large ends pointing the same way, and never add eggs after the hatch has started.

Cool the eggs after the fourth day by placing the trays on top of the machine and placing a thermometer on a fertile egg. As soon as the temperature has fallen to 90 degrees return the trays to the machine.

If the air-cell of the egg is unusually large, add moisture; if small, give ventilation. The air-cell on the first test should measure about a quarter of an inch from the middle of the large end; about five-eighths inch on second test, and about three-quarters of an inch on the nineteenth day.

Incubating white and brown-shelled eggs at the same time in the same machine generally results in unsatisfactory hatches. The shells of the former are thinner than those of the latter and consequently require different treatment.

After removing the infertile eggs in order to have an even temperature for the eggs in the machine, spread out the fertile ones in the trays so that they will occupy about the same relative position to one another.

In selecting eggs for hatching have them of a uniform size, neither too large nor too small. Also reject thin-shelled eggs and those having a ridge around them, or round and poorly-shaped ones.

A hen that shows unusual development of the abdomen, and has attained the stage known as "down behind," is too fat for a



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Is milled and screened with such scrupulous care that no dirt, lint or fluff can possibly get into it.

So the housewife and her family must enjoy that comforting feeling which comes from knowing that they are eating clean, pure food, when ROYAL STANDARD FLOUR has been used.

From the big, clean kernels of No. 1 Canadian hard wheat when it enters our mill to the pure white flour you take from your ROYAL STANDARD sack, absolute cleanliness is our aim.

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breeder. The hens in a breeding yard should be in good condition, and kept active by scratching for their grain.

The effect of age on fowls upon egg production was tested for seven periods of 30 days each at the West Virginia Station. The three pens of pullets, 100 in each pen, laid during the experiment 6209 eggs. The old hens were three and four years old and laid 6349 eggs. The pullets gained 143 pounds in weight, and the old fowls 84. The results, however, do not agree with experiments at other stations, and probably the apparent advantage of old fowls was due to unusual conditions.

To a hungry person any old hen may taste tender and good, but to the epicure only the best grades sell well, and it is to this class that the market poultrymen must cater. They pay the price.

A broiler will shrink as much as a half pound after being dressed. Live broilers should be shipped at three to four pounds per pair, and dressed not under two and a half pounds per pair.

Fowls of the larger breeds are best fitted for fattening. The age may be anywhere from three to five months, and the condition of the birds should be such as to show healthfulness and a tendency to take on fat.

Fat poultry—but not hog fat—is pretty

sure to always bring a good price. On the other hand, it hardly pays to ship poor, scrawny stock. If shipped together in one lot, the scrawny ones will cause the good ones to be cut down in price. It is profitable to sort and ship in separate lots.

The following method of "finishing" broilers has been used by some poultrymen for a number of years. When nearly large enough for broilers, the chickens are put into a pen having a shady run and a shady side. Here they are given clean, fresh water once or twice a day, and all the fattening food that they can eat. Corn in various forms is given—cooked, ground and whole. For variety warm potatoes and bread crumbs are added to the ration. Also, when it can be had, milk is given them to drink. This method will produce plump and fine looking carcasses.

It is generally believed that egg formation takes place at night.

The proper coloring of eggs is a dark brown for the Asiatics, a light brown for Americans and a pure white for the Mediterraneanans.

Roasters are shipped at from four to six months of age.

The majority of markets prefer yellow-skinned carcasses. The bulk of the meat of a fowl is placed on the breast and

thighs. It is important to have a breed that grows rapidly and fleshes up young.

The market weights for roasting fowls varies according to the season. Small bone, short legs and well-rounded form are good points desirable. The early roaster markets call for light-weight birds, the weight gradually increasing until late fall and early winter.

As a rule chicks that grow their feathers slowly are hardier and grow faster than those that exhaust their strength by feathering out early.

The farmers of Rhode Island have bred the Rhode Island Reds for fully 30 years. They are a solid, meaty fowl, with short thighs, long breast bone, deep yellow skin and light pin feathers.

The White Wyandotte is a good-sized blocky breed, well furnished with breast meat. Being small boned, their weight is in the meat, as compared with fowls of heavier frame. This variety leads for broilers and roasters, as they are hardy the chicks grow fast and stand considerable forcing. Until the chicks weigh a pound or a pound and a half they grow very few feathers, their gain being in their plump bodies.

Linseed meal (oil cake meal) is the product of the linseed oil factories. As a poultry food it is superior to cottonseed meal. It is very fattening, and therefore should not be fed too strongly. Mixed with ground grain in the proportion of twenty to one is about right.

Bulk in food is required for health. Rich and concentrated food is not readily digested and invites disease. Some poultrymen are of the opinion that a craving for bulky food is one of the causes of feather-eating in winter among confined poultry.

Clover cured only enough to preserve is excellent, and fowls will eat a portion of it all winter, when they would turn away from cabbage. The shattered heads of clover from the haymows are one of the most valuable of foods for egg production in winter. Pour boiling water on the clover heads, cover them over with a bag, and allow them to steam and soak until the mass has cooled down to about blood heat, then drain off the water and use a pint of wheat bran with each two quarts of clover heads. Mix thoroughly and feed warm.

Before starting the incubator clean out the heat or flue pipe into which the lamp chimney extends, and clean all parts of the lamp thoroughly, having the burners as bright as new.

LARGER PRODUCTION OF EGGS IS NEEDED

Necessity for Greater Number of Eggs and Poultry Never More Apparent Than at Present

According to a statement just issued by the Department of Agriculture, at no time in the history of the Dominion has the necessity for increased production of eggs and poultry been more apparent than at the present time. The demand is unprecedented. This is true for export or for home consumption. The consumers generally and even producers themselves are using more eggs. The average per capita consumption of eggs in Canada this year will be greater than ever before.

The market for poultry and eggs is very active. Prices to producers are extremely high, and even at these prices trading is



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Barred Plymouth Rocks, White Wyandottes, S. C. White Leghorns and R. C. Rhode Island Reds

Have been winning in the recent laying contests. One of our pens averaged 220 1/4 eggs per hen in 365 consecutive days. Another averaged 218 eggs per hen in 355 consecutive days, and still another, in the hands of one of our customers, at an International Laying Contest, averaged 207 2-3 eggs each in twelve months.

Plenty of individuals of our strain have records of 220 to 236 eggs in one year. No. 73 laid 103 eggs in 109 consecutive days. Her daughters laid 42 eggs in 43 days, 52 eggs in 54 days, 47 eggs in 50 days, and 47 eggs in 53 days.

Eggs for Hatching—\$1.50 per 15; \$2.75 per 30; \$4.00 per 50; \$7.00 per 100; \$60.00 per 1000. **Baby Chicks a specialty.**

Our new 1916 mating list, beautifully illustrated with photos from life, containing feed formulas, tonics, etc., is yours for the asking.

L. R. GUILD

Box 16,

ROCKWOOD, ONT., CANADA

increasingly active all over the country. The prospects for a continued demand are very bright. The country is said to be facing a shortage, not only of current receipts but of Canadian storage stocks as well. So great has been the export demand the country will be obliged to import to help out home demands. Nearly one million dozen eggs were shipped during the first week of October to Great Britain.

OVERCROWDING KEEPS THE HENS FROM LAYING.

One of the reasons why the pullets do not lay early in the fall or winter is because they do not get the right preparatory treatment. You can not expect them to lay when 50 of them have been crowded all fall in a coop large enough for 10 only. The pullets must be gotten into laying condition before cold weather comes if eggs are desired, and to get them into laying condition is to get them into houses that are large enough for laying hens a month before the laying season should begin.

A sure evidence that pullets have been overcrowded is the evidence of colds among them. It will be noticed by the chickens wheezing, by watery eyes and discharge from the nostrils. There will be no eggs so long as the condition exists which causes this. And the condition is almost invariably overcrowding the young stock.

To make good pullets they should have for a month before maturity as much roosting space as laying hens. When the pullets grow larger the roost perches should be placed farther apart. Very often this rule is reversed; when the perches become crowded others are put in between. This gives them perch room, but it does not give them air room. They roost too closely together and they become overheated and the air becomes foul. When a cold draft strikes them it means certain colds, and in the cold mornings when they come out of the overcrowded house they are chilled, and the symptoms of cold and roup are soon evident. Permanganate of potash, kerosene and other things will not cure so long as the overcrowding continues. Pull out some of the perches, and if you can not give the pullets another house let some of them roost on top of the house or in the tree.

The poultryman might as well be getting eggs as to be treating the pullets with permanganate of potash. He needs the eggs while the warring nations need the permanganate.

WHITE and COLUMBIAN Wyandotte, Light Brahmans and S. C. White Leghorns. Over thirty years a breeder. Stock and eggs for sale.

MICHAEL K. BOYER,

Box M, Hammonton, New Jersey.

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A large number of dandy Cockerels for sale from \$3.50 up.

If you want to put meat into your young stock next year try a Cornish Cockerel to cross with your breeding hens. Cornish are the BEEF birds in poultry. I have just the right bird at \$3.50.

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POULTRY TALK

Health depends much on the care given the fowls. They need close attention daily.

Low vitality should be guarded against by using only strong birds as breeders. Never use a male that is unsound.

If we want chickens with life enough to chase a grasshopper we must avoid inbreeding.

It is difficult to fatten stunted chickens. In feeding market poultry an important point is feeding regularly.

Don't sell all the strong, sturdy birds. The farmer must have that kind to pay him a good profit.

The muslin front house is a necessity for the health of fowls in almost any climate where it doesn't get too cold.

The chicken stunted in growth never becomes what it might have been had the development been continuous.

Perches nailed down tightly are not the right kind if you want to annihilate the frisky hen louse.

WOMEN'S SECTION

British Columbia Women's Institutes

Motto—"FOR HOME AND COUNTRY"

CONFERENCES OF WOMEN'S INSTITUTES OF BRITISH COLUMBIA

Great and Enthusiastic Meetings of Delegates from Various Local Institutes in the Vancouver Island and Lower Mainland Districts—Victoria and Cloverdale the Centres Respectively.

The Vancouver Island Meeting.

The conference of delegates from the various branches of the Women's Institutes of the Vancouver Island District, which was held in the Exhibition Hall of the Department of Agriculture at Victoria, on October 10 and 11, was perhaps the largest and most important in many respects of the meetings ever held by this organization. In addition to the delegates from the different institutes a large number of women from other organizations in Victoria and surrounding places were present, and the importance of the work being done by the women of this great body is indicated by the business done and the speeches delivered.

The delegates attending the conference were as follows: Colwood, Mrs. Parker and Mrs. Hall; Cowichan, Mrs. Blackwood Wileman; Garden City, Mrs. McLachlan and Mrs. Knowlton; Gordon Head, Mrs. F. Aitkens and Mrs. G. E. Watson; Lake Hill, Mrs. Foukes and Mrs. Calvert; Langford, Mrs. Dewar and Mrs. Waterhouse; Metcho-sin, Mrs. Brown; Oyster district, Mrs. Lowe; Parksville, Mrs. Middleton and Mrs. Hickey; Royal Oak, Mrs. Reid and Mrs. Chamberlain; Shawnigan and Cobble Hill, Mrs. E. Elford and Mrs. Wheelton; Sooke and Otter, Miss Gordon; South Saanich, Mrs. Lawrie and Mrs. F. H. Stewart; West Saanich, Mrs. Osborne. Miss A. Ravenhill of Shawnigan Lake, representing the Island on the advisory board, presided.

Following the opening of the meeting Hon. William Manson, Minister of Agriculture, extended the greetings of the government to the delegates. He declared his appreciation of the work being done by the women, and expressed the belief that that work was being properly appraised by the people. This was shown in the splendid majority polled at the recent election in favor of Woman Suffrage. In patriotic work the women had especially established a marvellous record.

Make \$2000 Profits.

Mr. W. S. Scott, Deputy Minister of Agriculture and Superintendent of Institutes, also spoke, congratulating the ladies on the success of the recent conference at Penticton, and the general progress of the movement. He pointed out that in 1910, when the movement was instituted, there were 17 institutes with a membership of 545; today there are 56 with a membership of 2994. The war had interfered considerably with the activities of the organization, otherwise the membership would at present have been materially larger. The importance of the work of the Women's Institutes was indicated by the fact

that the government, which in 1915 appropriated \$5000, felt justified this year in increasing the amount to \$7500. The average cost of each institute in 1914 was \$146.75. To the advisory board was due a great deal of the success of the organization.

Mr. Scott touched upon the work of education being carried on by the Department of Agriculture in the way of demonstration and lecture courses. A course of a week's duration had been enjoyed by all the institutes in domestic science, cooking, sewing, sanitation, nursing, etc. This year it was planned by the department to undertake a new line, to give instruction in other phases of interest to the farming community in subjects from which women would benefit, such as vegetable and flower growing, dairy work, poultry raising, soils, crops, home canning, live stock, etc. Mr. Scott instanced one case of a farmer on a seven and one-half acre plot securing over \$2000 profits by intelligent effort.

Reviews Women's Work.

Miss Ravenhill, the chairman, also extended greetings to the delegates and visitors and made announcements relative to the work before the session. She expressed her pleasure at the presence of Mrs. Davis, secretary, of Chilliwack, who with Mrs. Lipsett, of Summerland, represented the advisory board. She hoped that the work of the conference would be benefited by the pooling of the experience of members, and she urged all to become acquainted. A series of resolutions passed at the conferences at Penticton, Nelson and Cloverdale was submitted to a resolutions committee composed of Mrs. Wileman of Cowichan, Mrs. G. F. Watson of Gordon Head, Mrs. Frank Elford of Shawnigan and Cobble Hill, and Mrs. Osborne of West Saanich, which committee will subsequently report.

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He Couldn't Help Thinking of Home.

It's fine to be well in with the "Higher Ups." That's what I said to Stewart today when he showed me a letter he got from an officer in France. I don't mean a Corporal or anything like that, but a real genuine Lieutenant-Colonel. I wish I could tell you his name but I daren't. Stewart says, however, that I can tell you what's at the end of this letter. Here it is:

"Speaking of presents for the soldiers I would advise you to send chocolates, cakes, tobacco and things like these; also packets of tea; my men are fond of tea and one of them had two packets sent him lately and he gave one to me. I couldn't help thinking of home when I saw the label—'Blue Ribbon'—the very kind my wife used to be so faddy about, and I confess I always liked it myself, too. To tell the truth, I thought this tea a particularly suitable gift and certainly a pleasing change from some of the stuff we get here."

Stewart is so delighted with this letter that he says he's going to talk to everybody he knows about it. And believe me, so would I.

Jeanie Deans

Miss Ravenhill briefly reviewed the work of the Vancouver Island Women's Institutes during the past year and pointed out the benefits to be secured from such gatherings and the carrying on of the work. She called the attention of delegates to the exhibition of helpful household tools which had been prepared, and pointed out that the system of buying in bulk, a system already found to be of advantage in rural work, could be utilized in respect of the useful articles on display.

Greetings from the Daughters of the Empire of Victoria were extended by Mrs. D. Miller; from the Local Council of Women, by Miss Crease; from the Red Cross, by Mrs. Schofield, in the unavoidable absence of Mrs. Hasell.

Problems of Farmers.

"Market Problems and How to Solve Them" was the subject of an excellent and practical address by Dr. S. F. Tolmie, Dominion Livestock Commissioner, who, from his long experience of agricultural conditions in the province, cited instances where co-operation would have solved many of the chief difficulties confronting the producer. Success depended to a great extent upon the individual, whose standing could be imputed to his energy, business methods, careful marketing, and economy. There had for some years been excellent work done by the government towards inducing increased production; there was yet room for improvement in the business methods of the farmer, who should be led to recognize the importance of keeping a record of cost of production and possessing a better knowledge of market conditions. In the States and the Eastern Provinces much attention has been paid to farm management. Given a good market at a convenient distance, a farmer could be pretty well left to himself. No merchant would attempt to carry on business without keeping in mind the actual cost of conducting it, but very few farmers know the actual cost of production of their products. Lack of organization and co-operation, and lack of volume of products owing to sparse settlement were handicaps felt by the producers in connection with their marketing problems. Then there was Chinese competition, the man who feared to co-operate, the shiftless man who was willing to accept any price so long as he secured all the tobacco he required—these and other factors were met with everywhere.

As remedies for the drawbacks now met with by farmers, Dr. Tolmie suggested three things—education, organization and co-operation. Education should be along the lines of improved farm management. The government might well prepare a simple system of bookkeeping. If the farmer kept proper records he would soon see which were the profit-making lines and which were not. This keeping of accounts would prove one of the most valuable methods of inducing the farmer to co-operate, as he would be shown the need of not selling his goods for less than they cost him. The women of the household might well undertake the task of keeping the books.

Benefits of Co-operation.

The benefits of co-operation were illustrated by Dr. Tolmie, who took the egg industry as an example and showed how the rushing of eggs to market in the spring had resulted in a glut on the market and a drop in prices. Co-operation among the producers would prevent this, only the

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supply required would be sold and the balance held in cold storage and disposed of later, thus maintaining values at a satisfactory level and making a better average price throughout the year. The present unsatisfactory methods of marketing beef cattle were touched upon by the speaker, who believed that with better arrangements among the farmers prices 50 per cent higher could be secured. The same necessity for co-operation was felt by the dairymen, who were losing money through individual methods of distribution, when a co-operative system would meet all requirements at a greatly reduced cost; co-operative shipping of farm products would mean money to the farmers. It had been demonstrated in the fruit-growing industry in Saanich and Gordon Head, as well as in the Okanagan. By co-operation the farmer would learn to grow produce best suited to his district, and would also be able to govern supply and provide for careful inspection of quality, with the result that higher prices would be secured.

In the discussion which followed on Dr. Tolmie's remarks, Mrs. Aitken of Gordon Head spoke of the success which has attended the co-operative measures taken by the Gordon Head and Keatings growers, and expressed the belief that such a movement could be made to cover other products. The prairie trade had greatly improved with better shipping facilities. She believed the women could do a great work in furthering the policy of co-operation.

Mr. Scott declared that co-operation is the key-note of success in farming operations; he instanced the success of the Okanagan United Fruit Growers which today handles 70 per cent of the fruit output of that section, and showed how, by co-operation, they saved \$10,000 on the purchase of fruit boxes. It was an unfortunate fact that Vancouver Island and the Lower Mainland, the two oldest sections of the province, lagged far behind in the co-operative spirit.

Mr. R. M. Winslow, Provincial horticulturist, outlined the progress of the organization of the fruit-growers of the province and spoke of the excellent work of the market commissioners at Vancouver and Calgary, men engaged by the B. C. Fruit Growers' Association to keep in touch with markets, issue weekly reports, etc. As a result of co-operation the average return per pound on berries from the Gordon Head and Keatings sections this year was double that of two years ago. The B. C. Fruit Growers' Association spent over \$5,000 on publicity in the Prairie Provinces. He referred to some difficulties encountered in the movement towards co-operation.

Chairman Honored.

At the close of the afternoon session on the second day of the conference a pleasing event took place when Miss Ravenhill, the capable chairman of the conference, was made the recipient of a handsome umbrella, the gift of the delegates, who sought in this tangible manner to express their appreciation.



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At the morning session yesterday a number of important papers were read and evoked interest and helpful discussion. Mrs. Suttie, principal of St. George's School, dwelt upon the topic "The Moral Training of Our Boys and Girls."

"Preventable Ailments During School Life" was the subject of a paper presented by Dr. Etta Denovan, who classified such ailments as due to three causes—poor food, poor air and insufficient rest. On the point

of nutrition, Dr. Denovan urged the use as far as possible of uncooked food, which called for less expenditure of energy on the part of the mother, while the most nutritious elements in the best form was secured. She ventured the opinion that man should live longer than he does at present, and, in the same ratio of the animals, which live about eight times as long as it takes them to arrive at maturity, man, who is physically mature at 21 years of age, should live to be about 200.

Miss Alice Ravenhill gave a very interesting paper entitled "A Talk on Adolescence." She pointed out some of the precautions that should be taken with growing boys and girls at play and study; emphasizing the need of wholesome interest and urged that in the period between 10 and 14 years of age, when the child showed a keen curiosity, parents should not smother this natural spirit, but seek to answer and direct the enquiring mind.

At this session also reports on the progress of the various Island Institutes were handed in and discussion of these brought out many suggestions for improvement in the work of the institutes, and under the captions of "Institute Pledges," "Institute Programmes," "Institute Problems" and "Institute Achievements" the whole scope of the work of the organizations was canvassed and suggestions made.

On the above topics papers were read by Mrs. Dewar of Sooke, Mrs. Brown of Metchosin, Mrs. Lowe of Oyster district, Miss McLachlan of Saanich and Mrs. Blackwood Wileman of Cowichan, the last named urging co-operation in the household and pointing to the necessity of giving manual and domestic science training in the rural schools, instruction in school gardening and nature study.

Many Resolutions.

Many important recommendations were passed. These have been referred back to the local institutes, and if approved will be submitted to the government. The recommendations, which were couched in the form of resolutions, were passed as follows:

1. Resolved, that this conference deem it advisable and necessary that the government should supervise and regulate more closely than at present all places in the province where articles of food are prepared and manufactured, or exposed for sale, such as bake shops, abattoirs and retail shops.

2. Resolved, the laws of British Columbia regarding women and children are in need of amendment, be it resolved that the Women's Institute request the government to make certain changes as thought best by the advisory board.

3. Resolved, that we recommend the individual women's institutes to correspond with institutes in the Prairie Provinces for the purpose of exchanging products.

4. Whereas many of the residents of these districts cannot afford to send their children to a high school, be it resolved that we are in sympathy with the idea of inaugurating a high school scholarship fund in connection with our institutes.

5. Resolved, that in view of the practical difficulties experienced in organizing boys and girls' clubs in regard to age, supervision, inspection and subjects defined, that the advisory board be asked to report thereon to the Department of Agriculture.

School Dental Clinics.

6. Resolved, that this conference respectfully urge upon the provincial medical of-

ficer of health the necessity of considering the organization of dental clinics in the schools.

7. In view of the fact that the Women's Institutes are anxiously awaiting a reply to the petition that manual training be taught in the public schools in British Columbia presented in September, 1915, by 47 institutes, representing 200 members, to the Department of Education, be it resolved that a request be made to the department to receive a deputation on the subject at an early date, and that the following be invited to organize the deputation with power to add to their number: Mrs. Blackwood Wileman, Cowichan; Mrs. Hickey, Parksville; Mrs. F. Elford, Shawnigan and Cobble Hill; Mrs. Watson, Gordon Head; Mrs. Watson, Gordon Head; Mrs. Waterhouse, Langford.

8. Whereas cigarette smoking is extremely harmful to boys between the ages of 17 and 20 years, be it resolved that a resolution be sent forward requesting that the age of youths to whom cigarettes can be sold be raised from 16 to 20 years.

9. Resolved that this conference deem it advisable and necessary that children be trained to recognize poisonous plants and the antidotes of poisoning.

10. Resolved that the Women's Institutes of this conference take up the matter of collecting paper, but request detailed directions from the government as to collection and shipping.

11. Resolved that the continued support of the Women's Institutes be given to the

Look to your teeth for your winter illness!

THE cold and damp of winter brings with them Rheumatism, Kidney Trouble, and a thousand minor ills that are not only painful, but are a severe drain upon the vitality. You don't feel fit. You are never at your best. Perhaps you blame your stomach, and you are coming nearer the truth by doing so. But you should get to the very source of the trouble. . . . Look at your teeth!

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CALGARY ALBERTA

B. C. Consumers League and the efforts made to extend its valuable work.

12. Resolved that this conference give all support in its power to the admirable work of the Y. M. C. A. in the camps of Canada and throughout the Empire for the men who are fighting for their country; that all institutes seriously consider giving some regular financial support to the movement, if only \$1 per month, during the continuance of the war, and invite a visit from Mr. Haddock for further information on the scope, aims and accomplishments of the work.

13. Resolved that a hearty vote of sympathy be tendered the members of the Institute throughout the province who are in sorrow or anxiety.

Resolutions of thanks were also passed to the Department of Agriculture and its officials for assistance given; to the Superintendent of Institutes, Mr. W. E. Scott, Deputy Minister of Agriculture; to the speakers; to the Y. W. C. A. and others who assisted in the work of the conference or in the entertainment of the delegates.

LOWER MAINLAND WOMEN'S INSTITUTE CONFERENCE.

The Women's Institutes of British Columbia Lower Mainland met in Cloverdale on Oct. 4 and 5. At the opening session there were 50 delegates present, besides many visitors from the neighborhood. The delegate represented a membership of 2294 and the presiding officer was Mr. W. V. Davies, of Chilliwack.

On the platform with the speaker were two other members of the advisory board, Mrs. R. L. Lipsett, of Summerland, and Miss A. Ravenhill, of Shawnigan Lake. Delegates were present from Atchelitz, Burquitlam, Central Park, Chilliwack, Coquitlam, Hatzie, Haney, Hazelmere, Langley, Matsqui, Mission City, Surrey, Strawberry Hill, Tynehead and Upper Sumas. Visitors were in attendance from Haney, Chilliwack, New Westminster, Cloverdale, Mission City, Vancouver and Langley.

The reports of secretaries of the different institutes were very gratifying and recorded the great and noble work being done by the women of this portion of the British Empire. In all the reports patriotic work was the principal item, demonstrating what the members of the various institutes have done for the boys in the trenches, in German prisons and in the hospitals. Also the reports showed where the Serbians were helped, the Belgian sufferers aided, and even where furs were sent to the Italian armies.

Much Patriotic Work.

Mrs. Lipsett, in her address, told of the instruction in sewing taken up by the institute in the public schools, how marketing had been given consideration, and how, in the upper country, the women had beautified the towns by offering prizes for the best kept lawns and gardens, and had met with remarkable success. School libraries and traveling libraries also had been an important feature of the work, but all had been overshadowed by patriotic work.

In the reports of delegates, Matsqui proved the banner institute in adopting prisoners of war, and at present nine such prisoners are taken care of. Other institutes were also doing their share in this direction.

Mrs. Verry, of Central Park, in discussing the various reports of delegates, mentioned the gratifying activities in patriotic work and the plans under way for the returned soldiers. She, however, questioned the wisdom of holding raffles and games of chance by the institutes to raise money for the cause. She contended that the women in doing moral reform work were wrong in encouraging gambling in any form. Mrs. Croft warned the delegates that their intention in reference to raffles, and concluded by saying that it was just as bad for a woman to encourage this as it was for a Chinaman to gamble. In reference to the women's voting franchise, Mrs. Croft warned the delegates that they should not now expect any more consideration on public questions than the men. In fact, she said, we must now look at these public questions as man to man.

Exercising the Vote

The chairman asked each delegate how many lady school trustees they had been able to get on the school board and was informed that Central Park had one, Coquitlam one and Mission two. It was then intimated that after the women received the franchise that the lady members would be more numerous on school boards.

In connection with sending parcels to the prisoners of war, an interesting discussion took place as to the best manner of forwarding. Miss A. Ravenhill, of Shawnigan Lake, advised the delegates to send the cash to accredited agents rather than parcels. She cited information from a friend at Berne, Switzerland, where 6000 parcels a day were handled and where new regulations were continually being enforced, so that there was really no assurance of safe delivery.

Mrs. Kirk, of Strawberry Hill, in taking up the subject "Our Institutes; Their Accomplishments," illustrated some of the benefits, mentioning as the first patriotism, which has been so successfully and efficiently carried out. She cited the noble work done in the last two years by the women of Canada to assist the brave men fighting for the Empire. The next in importance was the great social improvement in rural communities and the progress made thereby in home-making and social life. Then came gardening, both for profit and for pleasure, with the many flower shows as further encouragement. Beautifying the home and public grounds was another worthy object of the institute. Economy also was an important item that the women are responsible for and are practising. While last, but not least, were the libraries established, where only the best authors could be found, and consequently the very best ideals brought into the minds of the younger generation. The speaker said the main object was to work for home and country.

Mrs. Flumerfelt, of Tynehead, spoke on punctuality, and also advocated young women's institutes where debates, etc., could be held. She advocated that in each district collections be taken up for the purpose of keeping up graves in cemeteries neglected through the people moving away.

Malicious Gossip

Miss Cruikshanks, of Matsqui, endorsed the last speaker in talking on the subject, "What Our Institutes Might and Will Do." She spoke feelingly on the suppression of the evil germ of malicious gossip and killing the deadly germ of "They Say," she appealed to the delegates to start a vigorous

campaign against the deadly gossip, which she stated was so common throughout the Fraser Valley.

Miss Ravenhill, of Shawnigan Lake, advocated the making of rural districts more attractive for the younger generation, and cited the practical work done in that direction on Vancouver Island. She stated that in the reports of delegates she noted a marked absence of lady school trustees, and declared that this must be remedied.

The afternoon session opened with the singing of "O Canada" and with Miss Ravenhill presiding. One notable feature during the session was the large number of women who, while listening, were busily engaged in knitting for the soldiers at the front.

Speaks on Education

In her opening remarks the chairman dealt at length on education. She cited the fact that real education consisted of the ability to know just what one don't know, in other words, to be broad-minded and profit by experience. This coupled with energy made the real educated person. She declared that children were taken from

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school at too early an age. Her contention was that the highest brain development was between 16 and 23 years of age. She declared that work must not be designated as drudgery, but rather looked at as a pleasure and a duty. The time had come, stated the speaker, when women's institutes must follow in the steps of farmers' institutes in reference to active co-operation. She mentioned the fact that in purchasing cooking utensils and household goods such as were on display at the conference that by all the members of the various institutes purchasing at once and placing a large order they could save 20 per cent. on the purchase price.

At the roll call each delegate was requested to answer to the question, "What I have economized in during the past year." The various answers disclosed everything from eliminating meat to giving the husband a family hair-cut.

It was apparent from the answers that dispensing with meat and substituting vegetables and eggs was the most popular form of economy. Growing and taking care of their own vegetables was advanced by many delegates. One delegate told of making all her own soap; another told of splendid house dresses made of short sacks; many described "made-over garments," and some even mentioned the fact that last year's bonnet was still doing service.

Modern Thrift

In talking to the subject of "Modern Thrift, or Utilizing Our Resources," Mrs. Stapleton, of Central Park, contended that true thrift did not mean the hoarding of money, but rather the wise expenditure of that money. She advocated simplicity in

the home. The utilization of natural resources and patronizing home industry so as to make a place for the boys when they came from the war.

Mrs. A. Stevenson of Haney, in discussing "Thrift," stated that the greatest factor in this connection was in paying spot cash for everything.

Mrs. Winson of Upper Sumas, talking on the subject of "Thrift," mentioned the fact that the farmer as a rule was too careless with the corners of his field, not reached by the machine, and thereby allowed noxious weeds to grow up. She cited many plants, such as fox gloves, dandelions, burdock, etc., that had excellent medicinal values, which could be conserved.

People Too Materialistic

Miss Cruickshanks, of Matsqui, took up the subject of "Women's Share in Reconstruction After the War." She declared that people were too materialistic nowadays and that a new religion was needed. She stated that there were too many church-goers and not enough Christians. "Love one another" should be the basis of reconstruction after the war, she declared, "for in loving one another we must serve one another," she concluded. She declared that women had been given two potent weapons to fight evil and help for the reconstructive period, viz., the suffrage and Prohibition.

Mrs. Putman, of Central Park, struck the same key note as the previous speaker. Prohibition, she stated, has given them the thin edge of the wedge into the social evil boulder. "And we can drive it in and make it worse than a German shell for the liquor interests," she declared.

She praised the Vancouver World for

the noble single-handed fight that publication made against the liquor evil and declared that she would have no other paper in her home after she saw how the rest accepted money for liquor advertisements. Her remarks were loudly applauded.

She declared that real patriotism was made up by patronizing home industry instead of the sweat shops of New York or the dens of Chicago.

Mr. John Kyle, director of manual training, Department of Education, delivered a brief address on the work being accomplished at the convalescent home for returned soldiers.

Miss Olive Atcheson at this point rendered a very touching song.

Market Problems

Market problems were discussed by Mrs. Ferguson of Haney for the north, and Mrs. Morrison of Langley for the south side of the Fraser.

Mrs. Ferguson approached the matter from the small fruit growers' standpoint, and designated it as a great disappointment with a great waste of fruit. She cited cases where fruit was shipped to Vancouver and not enough money secured to pay for the picking, consequently shipments from the district were discontinued. She mentioned that some members of the Fruit Growers' Association were planning to start a pulp-plant to prevent the great wastage next year, bearing out the facts as published in The World in connection with this deplorable condition in the Fraser Valley.

Mrs. Morrison started her address with the statement that the commission houses must be put out of business. She scored the present market system in New West-



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VANCOUVER, B. C.

minster and declared that the farmers were at the mercy of the Orientals. She said that the farmer sold chickens at 15 cents per pound and when his friends went to buy in town they are charged 35 cents per pound for the same chicken. She claimed that in fruit and vegetables the American producer was favored and strongly urged co-operation, with a cold storage, which was urgently needed at the New Westminster market.

At the conclusion of the afternoon session, Mrs. Davis announced that she had appointed the following committee on resolutions: Mrs. Solloway, Mission; Mrs. Verry, Central Park; Mrs. Winsom, Haney; Mrs. E. F. Easthope, Atchelitz; Mrs. H. Morrison, Langley, and Mrs. A. Rober'son, Atchelitz.

At the evening session, which convened at 8 o'clock, greetings were received from Mrs. Whitely, president of Surrey W. I., and greetings from Surrey by Reeve Thomas Sullivan; the response given by Mrs. Manson. Mr. Wm. E. Scott, deputy minister of agriculture and superintendent of institutes, delivered an able address, after which Mr. John Kyle, director of manual training, Department of Education, gave an interesting address on industrial and vocal training, illustrated by lantern slides.

Mr. H. R. Hadevek, secretary military service department, Y. M. C. A., gave an address on "Our Work With the Canadian Forces."

The day closed with a social evening given by the Surrey W. I.

The second day's sessions were characterized by much important business and a number of excellent addresses.

"The Needs of Our Communities and How to Meet Them" was discussed, after which the "Problems of a Home-Maker" was taken up. The financial report was submitted.

This was followed by "Social and Educational," by the Matsqui delegates; "Sanitary," by Mrs. Dusterhoeft; discussion led by Mrs. Deagle; "Advantages of Boys' and Girls' Clubs," by Mrs. Solloway, and discussion led by Mrs. Easthope and Mrs. Hazelmere.

In the afternoon, through the courtesy of the Surrey council, automobiles conveyed the delegates to the Kelley farm.

The afternoon session included "Some Laws Concerning Women and Children," by Mrs. J. C. Kemp; "Preventable Ailments During School Life," by Dr. Morley, medical health officer of Surrey; "Some Problems of Adolescence," by Miss Alice Ravenhill; discussion led by Miss Wakely, Coquitlam.

BUTTER MAKING INDUSTRY IN VANCOUVER.

Would Keep Money in Province and Bring Cost of Living Problem Nearer Solution.

The question of promoting the butter-making industry in the Vancouver district is being vigorously taken up by City Industrial Commissioner Davidson. At the meeting of the civic industries committee on Monday, October 30, this subject was brought forward by Mr. Davidson, when the object he has in view met with the whole-hearted support of the aldermen, and he was urged to go ahead with the carrying out of his scheme. The next move in this direction is the calling of those interested in the industry together, when the matter will be fully discussed in all its phases.

Mr. Davidson points out that such a movement is most opportune at the present time, when the subject of the high cost of living and of the necessities of life generally is receiving so much attention at the hands, not only of the public generally, but also of the business community, as he declares that the making of butter here will cheapen that article of every-day consumption. It is also contended that the standardization of the butter will improve the quality of the article, as well as tending to cheapen its cost.

Another thing that the commissioner has in mind is that by the establishment of a large butter-making industry in this province, the need for importing butter will cease, and the money will thus be kept in the province for circulation among the people of British Columbia.

Mr. Davidson is issuing invitations to a meeting to be called in the City Hall at 2 o'clock on the afternoon of Friday, November 10, when Ald. Hamilton, chairman of the civic industries committee, will preside. Invitations are being dispatched to all the municipalities in the Fraser Valley and the Delta to send representatives to the gathering; to the Fraser Valley Development League, the dairymen, wholesale butter dealers and brokers, to Livestock Commissioner McDonald, Coast Market's Commissioner Abbott, the B. C. Manufacturers' Association, and the Consumers League. Mr. Davidson states that he has already been in communication with the secretary of the Fraser Valley Development League, who is co-operating, and is forwarding notifications of the meeting to all the members of the league throughout the Fraser Valley.

DIARRHOEAL DISEASES OF CALVES.

Some writers classify diarrhoea in calves under but two heads; that is, sporadic diarrhoea or dysentery, the germs of which may gain entrance to the animal anatomy through the fresh umbilicus or through other natural channels of infection.

The symptoms of sporadic diarrhoea are looseness of the bowels, with perhaps bloating, colic pains and loss of appetite; the calf may be feverish, the mouth pasty, nose hot and dry, in some cases the disease may be ushered in with a chill. The faeces at first may be thick and pasty, of normal color and smell, later becoming more watery and light colored, frequently expelled in ets, and finally becoming greasy yellow or dull green, frothy, sour smelling, or of a very offensive odor, and may contain flakes of undigested curd, scalding the skin below the anus and under the tail, causing the hair to fall off.

Sporadic diarrhoea may appear when the calf is a week or two old, or later when a month or six weeks of age.

Causes.

There are numerous causes for this form of disease. It may be brought on by attempting to wean too early, giving dry food of a coarse, fibrous or irritating character before the digestive organs are sufficiently developed to receive such material, or from mouldy forage.

Improper milk substitutes may be another cause, especially if too rich in starch, or given in too large quantities at first.

Sudden chills may cause diarrhoea in young calves; a sudden cold snap in winter may cause calves to scour.

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Overfeeding at too long intervals is another cause; it is better to feed the calf three times a day on a moderate quantity of food than to allow it to gorge itself morning and night, as is sometimes done.

Dirty vessels of milk that has been kept too long, or that is too cold at the time it

is fed, may all be the causes, as well as improper milk, such as milk from a cow with mammitis, or from a cow giving milk too rich in fat, or fat of an indigestible character. Sometimes food of an improper character, or medicines given to the mother, may affect her milk and render it indigestible, or even undue excitement or fatigue may influence the lacteal secretion.

These various causes may lead to the development of bacteria in the digestive canal of the calf that are not of themselves injurious in small numbers, or that have no influence on older cattle, which result in indigestion, bloating, and diarrhoea.

Treatment of sporadic diarrhoea if adopted early is usually satisfactory. In the first place, try to avoid the disease by feeding regularly at not too great intervals, taking care not to overfeed, to furnish proper food under cleanly conditions. These precautions are usually sufficient to prevent the appearance of the malady.

If a calf should develop sporadic diarrhoea, curative treatment has every chance of succeeding if undertaken in time.

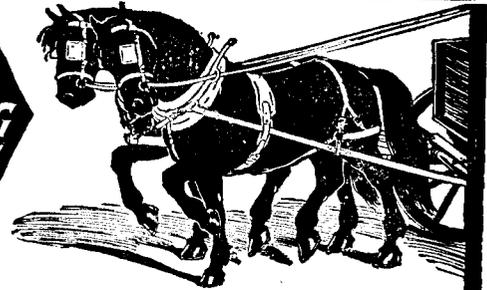
Simple treatment if adopted early is sufficient; reduce the quantity of food, scald the milk, and add lime water to it, also a little bicarbonate of soda. A teaspoonful of powdered cinnamon and a teaspoonful of powdered ginger in the food is excellent, in addition to the lime-water and bicarbonate of soda. If the calf has been used to having calf meal in its food, a small quantity of this will sufficiently disguise the taste of the cinnamon and ginger so that they will be readily taken if the little animal has not gone completely off its feed. If diarrhoea is due to milk too rich in fat, skin milk or milk from another cow may be substituted.

In disturbances of the digestive organs it is often advisable to give a mild purgative at the outset of the disease in order to quickly remove any irritating or indigestible material that may be making trouble. For this purpose, two or three ounces of castor oil will prove effective, or a small dose of either Glauber's or epsom salts.

In more severe attacks, where there is loss of appetite, it may be necessary to bottle medicine into the calf; in such cases, more powerful drugs may have to be employed, such as laudanum, ten to twelve drops in a little rice water two or three times a day, of subnitrate of bismuth, in doses of twenty to thirty grains two or three times daily. In some cases intestinal antiseptic such as sabol or caliclylate of soda will prove useful. In cases where the calf is very weak it may be necessary to keep up its strength by means of stimulants; for this purpose brandy is one of the best, given in small doses of from one-fourth to one-half ounce in a little warm water every three or four hours.

If there is much tympany in a sudden attack of acute indigestion, two or three teaspoonfuls of aromatic spirits of ammonia in three or four ounces of water will relieve the bloat, and is an excellent stimulant. This should be given in cool water; if given in warm water the ammonia starts to evaporate and causes the calf to gag, in which case the medicine might go the wrong way, enter the windpipe, and produce mechanical pneumonia. In fact, in giving bulky medicines of any kind to animals, they should be administered very slowly and carefully in order to avoid this accident.

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