

BRITISH COLUMBIA
FRUIT AND FARM
MAGAZINE

Vol. VI, No. 7

APRIL, 1915

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“HELD UP.”

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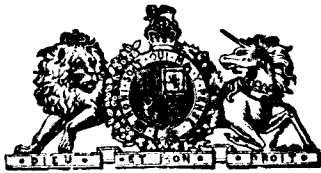
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CONTENTS *for* APRIL

1915



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 twenty-one 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 must 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 should be furnished at least once a year.

The lease will include the coal mining rights only, but the lessee may be permitted to purchase whatever available surface rights may be considered necessary for the working of the mine at the rate of \$10 an acre.

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.

N.B.—Unauthorized publication of this advertisement will not be paid for.—58782.



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The Use of Electricity on the Farm Will Save You Time and Labor

Investigate—It Pays

On page 558 of this issue will be found an interesting article on the uses of electricity on the farm. Every farmer within reach of the B. C. Electric distribution lines should read this article carefully, and then communicate with the offices of our Light and Power Department as to the possible use of electric current in connection with the work on his place.

ALL INQUIRIES WILL BE GIVEN ATTENTION

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BRITISH COLUMBIA Fruit and Farm Magazine

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

Vol. VI.—No. 7.

Vancouver, British Columbia

\$1.00 per year
in Advance

NEW VALLEYS FOR THE SETTLER

How a Line of Railway Opens Fresh Fields for the Agriculturist.

The farmer cut off from a market is like Sinbad the Sailor in the Valley of Diamonds: he is surrounded by wealth that is useless to him unless he can get it away from the spot where he finds himself. The hero of *The Arabian Nights* baited himself with raw meat, so that a bird of prey seized upon him and carried him and his precious stones out over the top of the wall of rocks that had shut him in. It is a beneficent organization—a railroad, in fact—that

themselves for years. But now at last these men will reap the reward of their long patience, and the magnificent country, in whose great future they have always believed, is going to come into its own.

The track of the Pacific Great Eastern Railway has already been completed from Squamish, at the head of Howe Sound, to Lillooet, a quaintly pretty town, built as long as forty years ago by the miners, at the point

along the coast, which is extremely precipitous at this point, to join the main line at Squamish.

The building of this new railroad, which is the first line in British Columbia running north and south instead of east and west, was authorized by the present Government, and the Railway Company, incorporated only three years ago. It will be seen that the enterprise has been pushed forward with rapidity. Its value to this Prov-



Farm Lands, Pemberton Meadows

has come to the assistance of the farmer similarly shut off by a mountain barrier in the northern districts of British Columbia.

Up to the present time all the vast resources of land, timber and mines lying north of Vancouver and extending up to what is known as the Peace River country, have been locked up. Their products have been lost to this Province and to the Dominion. The country was commercially inaccessible. Men with courage and with faith in the future went north, it is true, built homes, made gardens, raised crops and bred stock in a limited way, and in doing so have practically buried

where the waters of the Seaton and Anderson Lakes empty themselves into the Fraser; and by the end of this year it is expected that trains will be running into Fort George, the present terminus of the line. This does not include the short stretch of the same railroad running between North Vancouver and Whytecliffe, on Horseshoe Bay, which has been in operation for the last year and gives easy access from the city to several charming summer resorts, where the beauty of the scenery, the bathing and the fishing, attract crowds of people during the warm season. This short track, twelve miles in length, is to be continued

ince reaches farther and goes deeper than merely catering to the pleasure-seeking and sport-loving public. Its true worth and importance lie in the consideration of what the opening up of the millions of acres which it reaches, will mean to the agriculturist, the fruit grower and the stock breeder. Not only to the farmer who is already on the spot, but to the thousands who will come in to make their homes in this region which will now be served by the P. G. E.

The present population of this Province is pitifully inadequate to develop our really enormous resources. We must have more people. What is half



Fruit Farm, Fraser River and Piers for P. G. E. Bridge, Lillooet

a million in a country that covers 357,000 square miles? Above all we must have more farmers, because, as we know, a people must first of all be able to feed itself, and, after having done that, its wealth will depend mainly on the surplus it can produce to sell in the great markets of the world.

It is useless to be always crying "Back to the land," if no measures are taken to make the cultivation of the land profitable and no inducement is offered to the citizens of the nation to choose farming as a means of livelihood. That has been the trouble in British Columbia in the past. Now, with the opening of the Pacific Great Eastern, we have a fertile and beautiful country, inviting settlers and offering them a good and growing market within easy reach, as well as a port with unexcelled facilities for shipping.

Squamish is situated at the head of Howe Sound, on a harbor which for size and depth could accommodate the shipping of a continent. From this town the P. G. E. Railway proceeds north, slanting always a little towards the east, and runs up the valley of the Squamish until the Cheakamus is reached. Here it follows the canyon of the Cheakamus, passing through millions of feet of standing timber and incidentally taking in scenes of wild grandeur and beauty such as will, when better known in years to come, make our Province renowned in all the world.

The first important agricultural area reached is that of Pemberton Meadows. These meadows comprise thousands of acres of land of the greatest fertility—more especially the bottom lands, which, lying as they do in a basin enclosed by hills, have received the fertilizing deposits of centuries and are now ready to pay back with interest what they have received, to "the man with the hoe." Inaccessible though it

has been up to the present time, there have been settlers for many years living in this favored region, where three crops of hay may be cut in one season, and other crops in proportion are grown.

The railroad crosses the lower end of the valley. The soil is virgin river silt, entirely sedimentary, a yellow and greyish brown loam and sandy loam of good depth. The lower valley, that is the first 10 miles up from Lillooet Lake, is the most open. Here there are large stretches of land comparatively clear. The soil is heavy, and great hay crops are grown. However, drainage is required before this land is available for cropping. A systematic drainage scheme is being undertaken under the Provincial Dyking and Drainage Act. The work is comparatively cheap, and there are no serious obstacles to be contended with. Over the balance of the valley the natural

growth varies. There are extensive areas of practically tillable land, sprinkled with patches of willow, alder, cottonwood and an occasional cedar. This land, so far as drainage is concerned, is ready for cropping. Under-drainage in places will be necessary for certain crops. The subsoil throughout the valley is clay. The sub-irrigation is excellent. The Lillooet River, a slow-running body of water traversing the entire length of the valley, is at its highest in the months of July and August, when it runs almost bank high. There is during these months a heavy seepage, and as all the land lies comparatively close to the river, it is all benefited. There is also a seepage from the mountains on to the land furthest from the river. No matter how hot the summer, or how little the rainfall, this sub-irrigation can be relied upon to furnish sufficient moisture for the growing crops. This sub-irrigation is unique. It may be considered one of the chief reasons for the heavy and uniform crop production. Another advantage which could well be considered here is the great heat-retaining and heat-reflecting service performed by the rocky hills which, we have before mentioned, rise abruptly from the valley level.

The climate is delightful, to say the least. There are no extremes of heat or cold. Sickness is rarely known in the valley. The mountain air is bracing, and one feels at all seasons of the year that keen pleasure of being alive. From the farming standpoint, the summers are just right for growing—a little warmer in the daytime than the Coast, the thermometer standing from 75 to 90 degrees, occasionally going over this mark. The nights are cool. In the fall there is more or less rain. The



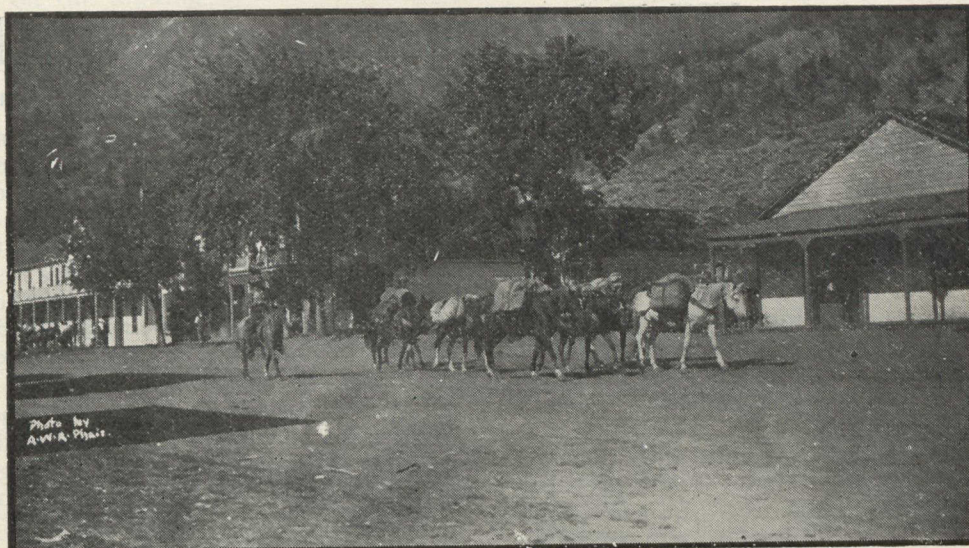
Lillooet, B. C.

total annual precipitation has been estimated at 40 inches. In November there will be some snow. The snow lies from some time in December until spring, its depth ranging from one to four feet, and varying with location. In the lower or south end the depth is always less than further north. This snow gives fine protection to the soil, and is good for winter hauling. There is practically no wind in the winter, and the thermometer does not often go below zero. The snow disappears early in April and leaves the soil in excellent condition for spring plowing.

From Pemberton the road runs, still slightly slanting to the east, to Lillooet, passing through fine, open, arable country, where the climate is dry and mild, and which is capable of producing as fine fruit as can be grown anywhere. This has been proved by the fruit that has been grown at Lillooet, unsurpassed for color and flavor, and can be asserted with equal confidence of the districts of La Hache and Lake Williams. That irrigation will be needed in some places is true, but with water in abundance on every hand this is no drawback, and as soon as the railroad reaches Fort George and joins the Grand Trunk Pacific at that point (within less than twelve months, in fact), fruit growers will have in the provinces of Alberta and the Northwest, a wide and profitable market for their crops.

The great cattle country of the Cariboo is also tapped by the P. G. E. Railway, and the stock ranger now has the prospect of getting his beasts to a market where he can sell profitably.

As the railroad is prolonged northward, the great dry belt is traversed for a great distance. Here, in years to come, the canteloupe, peppers, grapes, etc., for the lower Coast markets will be produced. The soil, under the touch of water, will grow almost anything,



Off for the "Big Horn" Country

and the warm weather brings these crops to rapid and perfect fruition.

At Lac La Hache, a huge area of one thousand square miles lies waiting for the mixed farmer of the British Columbia of tomorrow. The conditions for carrying on this class of farming are ideal.

In conclusion, we may say that with the building of this new railroad the chief, if not the only, drawback to settlement in the rich and promising lands reaching from the head of Howe Sound right up to the Peace River country, which is the ultimate destination of the Pacific Great Eastern, has been removed, and we confidently look forward in the near future to seeing a large number of settlers go up into these new lands to possess them.

It is altogether likely that the end of the great European war will see an unprecedented rush of immigrants to Canada from the impoverished continental countries and from the British Isles, where great numbers of people

will have to start life afresh when the inevitable industrial and social readjustment, that must follow the war, sets in. As always before, the West will attract them. It will be an immense advantage to us and to them that there will then be this choice region open for settlement and already in communication with the centres of population—a region comprising, as already stated, hundreds of thousands of acres of the best soil, not to mention the riches of its mines and forests.

If the man who makes two spears of wheat to grow where one grew before is a greater benefactor to his country than the victorious general on the field of battle, we must also count among our national benefactors the great railroad engineers and the corporations behind them, who have thrown open and built up the country along the lines of the steel rails they have laid.

AVERAGE ACRE VALUES OF BRITISH COLUMBIA FIELD CROPS.

The figures in the following table are obtained or derived from the Census and Statistics Monthly for December, 1914, and January, 1915. Profits per acre for 1914 will vary with the cost of production, yield and market price.

Average Yields and Values per Acre of Field Crops for British Columbia in 1914 and Some Profits per Acre in 1913.

Crops	Average yield per acre bus.	Average price per bus.	Average value per acre	Profit per acre 1913
Fall wheat ..	31.82	\$1.22	\$38.82	\$13.12
Spring wheat.	27.77	1.23	34.15	8.69
Oats	55.93	.62	34.68	4.68
Barley	37.29	.92	34.31	...
Peas	30.00	1.45	43.50	...
Mixed grains ..	56.67	1.03	58.37	...
Potatoes	182.00	.78	141.96	...
Turnips and other roots.	431.00 tons	.53 per ton	228.43	...
Hay & clover.	2.23	15.54	34.65	...
Fodder corn..	8.00	6.00	48.00	...
Alfalfa	3.33	13.60	45.29	...



Freight Teams, Lillooet, B. C.

ELECTRICITY ON THE FARM

Special Mention of Electric Milking Machines as Used on Shannon's Ranch at Cloverdale

IFIRMLY believe that every corner of this country, where density of population justifies it, must within the next few years have a central station supply of electric energy for the general use of the people living in the small towns and farming districts. Every important public highway ought to carry a power distribution line, with farmers freely tapping the supply of electric energy. We shall live to see this done."

The above statement was made recently by Mr. Samuel Insull, president of the Commonwealth Edison Co. of Chicago, in connection with an article dealing with the uses of electricity in agricultural communities. Although Mr. Insull's statement was made when discussing the farming situation in the Central States, it is stated by representatives of the B. C. Electric to be equally true in the sections of British Columbia through which the company's light and power lines pass. They state that throughout the South Fraser Valley and the agricultural sections of Vancouver Island, a constantly increasing interest is being shown in the use of electric current for work on the farm and dairy. Many power installations are now in operation at farms along the company's lines, and it is probable that during the present season many additional installations of the same character will be made.

"Every farmer and dairyman," said the official of the B. C. Electric, "is immediately interested when the question of the installation of machinery which will save time and labour is made. Residents of agricultural communities have seen what manufacturers can do by allowing machinery to do the work formerly done by hand, and their interest is immediately aroused when they are shown that through the provision of electric current they can eliminate much of the drudgery and hard work incident with farm labour, while accomplishing the task in much less time than was formerly the case. The company now has on its line installations for the performing of many types of work peculiar to agricultural communities by the use of electric current, and the scope of the applications of the electric drive is constantly widening. Among the most common use of current on the farm are the provision of lighting for the house and barns, the operation of pumps to provide water by gravity system from a storage tank throughout the house and to the various barns and outhouses, the operation of grain-choppers and grinders, milking machines, milk separators, churns, etc., as well as the many other tasks connected with farming life."

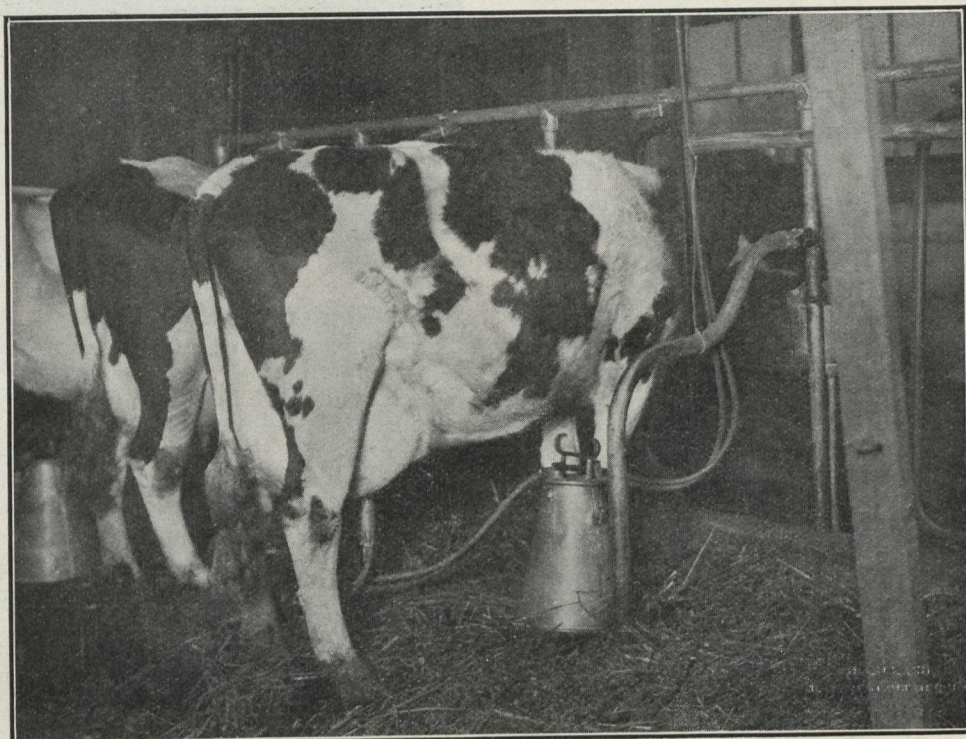
the large cow barns on the Shannon

A representative of Fruit and Farm recently accompanied a member of the light and power staff of the B. C. Electric on a trip to Shannon's ranch at Cloverdale, where extensive use is made of electric power provided by the B. C. Electric, the ranch being situated near the company's line through the South Fraser Valley.

One of the applications of electricity on this farm in which our readers will probably be interested is the milking machines, which are constantly used in

year, and does a class of work which it is difficult to get hired help to do satisfactorily.

Cleanliness is a very important point in milk production nowadays, and along this line the electric milker occupies a place all by itself. Contamination of the milk, such as is almost unavoidable in the case of the milking by hand, is practically eliminated with the milking machine. In practical demonstration, it has been shown that there is practically no sediment in milk when such machines are used. The bacterial



No. 1 Electric Milking Machine in Operation, Shannon's Ranch, Cloverdale, B. C.

ranch. The milking machine is one of the new features in the use of electricity on the modern dairy farm, and so successful have they been that they are now a recognized part of the equipment of large dairies throughout the world. There is a popular idea that milking machines may be used to advantage only in the case of a large dairy, but it is stated that its scope is such as to make it possible for every farmer who has a dairy of ten cows or more to utilize the method to his advantage and profit.

Farmers who have used milking machines state that the saving in labour over the old practice of milking by hand is almost unbelievable, and that there is no other machine which can be installed on a dairy farm which will pay for itself as quickly. The machine is used twice a day for 365 days per

count of the milk is much more satisfactory where milking machines are employed, and dairymen who ship their milk into the cities and are anxious that their product shall remain sweet as long as possible are enthusiastic over the possibilities of the apparatus.

The question was put as to whether cows objected to this more modern form of milking. It was stated in reply that the cows appeared to like "machine methods" even better than milking by hand. The operation of the machine was gentle, regular and steady, there being nothing about the mechanism or its operation which would excite the cow or harm it in any manner. The operation of the milking machine was stated to be much nearer the natural process than that of milking by hand. The flow of the milk was more even, a point of great interest to

dairymen, as all experts agree that the more uniformly cows are milked the greater and more regular will be the flow of milk. An illustration of this was given in a comparison of the results obtained by farm hands who were good milkers and those who were indifferent at their work, it being well established that a cow always gives more milk when a man who was proficient at his task was doing the work.

The two views shown in connection with this article illustrate the electric milking machine as used on the Shannon ranch. No. 1 shows the machine in actual operation, while No. 2 shows the central mechanism from which the plant is operated. The electric motor operating the milking plant is shown in the lower left hand corner of No. 2. It is placed on the floor and connected by a belt to the countershaft suspended from the ceiling, from which another belt runs to the vacuum pump, also located on the floor. This pump is connected by short lengths of piping to the vacuum tank, from which the pipes run to the milking stalls.

View No. 1 shows the milking machine in actual operation. Flexible tubes are connected with the vacuum pipe extending from the motor plant, this pipe being usually run along the top of the cow stanchions with a connecting device at the various stalls. The flexible tubes lead to the milking machines from which other flexible tubes lead to the milkers, which are placed on the nipples of the cow, being firmly held in this position by the uniform vacuum pressure. The suction necessary for milking is applied intermittently through an automatic valve

on the milking machine. The operation is one of alternate pressure and relaxation, this being almost exactly similar to the natural action of the sucking of the calf, which is much easier than forcing the milk by hand.

On the Shannon ranch three milking machines are now used with the vacuum plant operating the machines, but the plant is capable of handling six of the machines. The milking machines and apparatus used at this ranch are typical of the type used in large dairies throughout the country, although there are a number of makes of the machines and different arrangements of lay-out for the milking system.

Leaving the subject of milking machines, the representative of the B. C. Electric spoke of the installation of pumping machines on many farms throughout the company's territory. An ample supply of good water at central points is one of the prime requisites of a good farm, and for this reason electric motors and pumping apparatus are very popular with farmers. One of the best devices of this class is an apparatus which is practically automatic in operation. The motor starts working as soon as the water in the central storage tank is drawn off below a certain level and ceases operation automatically by the cutting off of the current as soon as the tank is sufficiently filled.

In the above article only a few of the practical uses to which electricity might be applied on the farm are mentioned. The leading agricultural journals of the country are, however, taking the view that as a time and

labour-saving factor, the use of electric current for farm and dairy work is bound to increase with amazing rapidity in the near future.

BOYS' OWN PLOT.

How Each of Our Young Readers Can Farm for Himself.

By Rusticus.

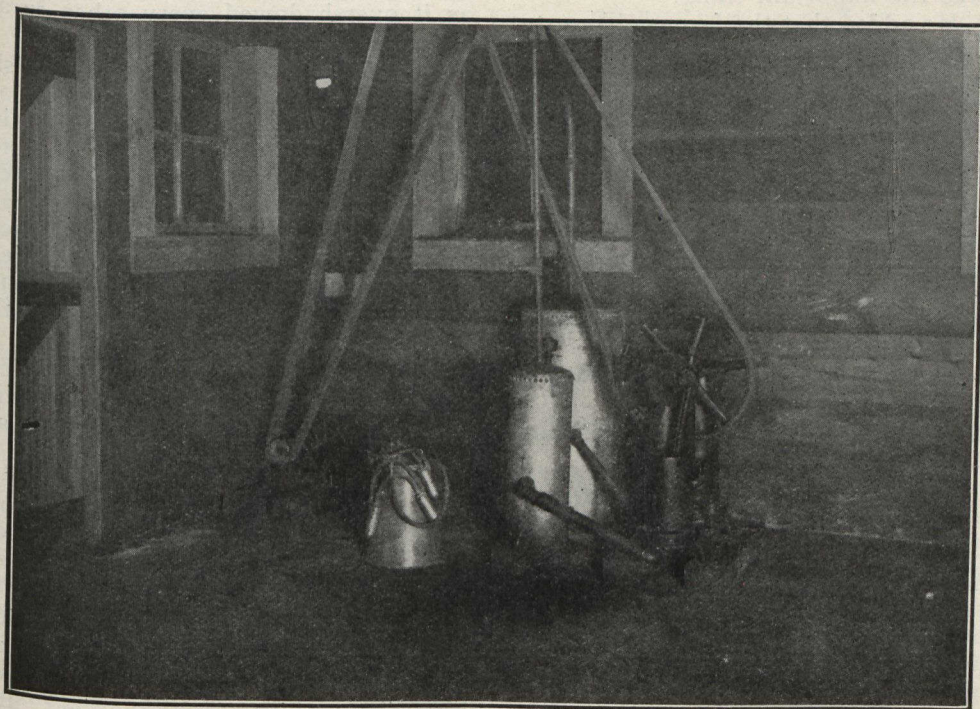
If you are a boy and live on a farm, you ought to have a plot of your own to grow things in. If you are big enough, you should plow and harrow it yourself; if not, have your father prepare the soil for you. After that, do everything yourself; manage your miniature farm as your father does his big one—independently. Do not undertake too big a plot, or you will find its care too much for you, and get discouraged.

You may grow in your plot whatever you are most interested in—field roots, vegetables, even grain. Have a little blank book in which to enter the quantity of seed sown and its value, and the area of each subdivision of the plot if you grow more than one product. Enter the area in square feet.

When you harvest your crop, or crops, weigh the product of each subdivision, and enter this in your book. Then you can figure out how many fold your seed has returned you and what the yield is per acre. The entering of these items in your book will be good training in care and system, and the figuring you will find good practice in practical arithmetic.

Once started, do not neglect your plot. Make it a business, and see if you cannot make a showing on your little farm as good as or better than your dad does on his big one.

Another thing to work for is prizes. Try to get an award at your district fair for a sample of your swedes, man-golds, turnips, beets or potatoes. Last year a boy fifteen years old won the first prize of the whole United States for the best sample of corn and the best yield per acre; and he raised the corn without the assistance of his father or any member of the family. Now his father will probably be asking his boy's advice as to how best to grow corn. And right here in British Columbia—in the Fraser Valley—there are children who are fast becoming expert producers through practice and experiment in small plots. If these children keep at it they will be specialists when they grow up. Two children the writer has in mind—both under fourteen—experimented last year with different varieties of peas, different cabbages, different beans, etc., to find which sorts were best suited to their soil and district. In most of the experi-



No. 2 Motor Vacuum Pump and Vacuum Tank used in the Operation of Electric Milking Machine, Shannon's Ranch, Cloverdale, B. C.

ments a factor was early maturing, and it is doubtful if any professional gardener on the B. C. coast had vegetables ready for table earlier than these two children. They are tremendously interested in their work and are very

careful in coming to decisions between products that are almost equally good.

Do not be discouraged if your first attempt at growing things is only partially successful or a failure. It is through failures that all of us learn

most. After a failure we at least know what not to do. Try a plot of your own this year—a piece of ground you can call "My own plot." Do your best with it, and write to Fruit and Farm and tell us all about it.

Increasing the Output

B.C. Farmers Receive Advice at "Patriotism and Production" Conferences

During the past few weeks there have been held at various points throughout the Province conferences with the farmers, with the view of stimulating the production of the farms of the West in view of the extraordinary demands which the war will make upon the producing areas of the world. At the meetings Prof. Macdonald, Prof. Klinck, Dr. Tolmie, Supt. Moore, R. M. Winslow, J. Forsyth Smith, W. E. Blackmore and Herbert Cuthbert led the discussions.

Space will not permit an extended account of all these meetings, but some points made by the different speakers may be given, as indicating the lines upon which farmers may co-operate to help the commissariat of the armies and the Empire.

Dr. Tolmie gave some startling figures with respect to the mortality among horses. For instance, there are one million horses at the front of the battle line in France; that the average life of a cavalry horse on the battle field is seven days, and that of an artillery horse, thirty days; it is estimated that it will take twelve million horses to continue the war for one year. Almost as startling figures were given as to the number of beef cattle, sheep and hogs. We talk about starving Germany out; but whereas Great Britain imports 40 per cent. of its meat supply from the outside, Germany only imports 6 per cent. Denmark alone sent 40,000 hogs a week to England and, naturally, under present conditions, this supply must largely cease.

Coming to conditions of supply in Canada, Dr. Tolmie said that in the case of horses we had comparatively few to export, and that horse dealers in British Columbia should endeavor to raise as many as possible this year. With regard to cattle, Canada was able to keep herself supplied and also to send 129,000 to the United States last year; this number should be increased. In the case of sheep, Canada had imported a great many, and there was never a time when the prospects of the industry were so good. Wool had increased in price 10 per cent., and the demand for mutton was greater than ever.

Dr. Tolmie recommended that the farmer stay with the stock and do not dispose of his animals, except as he

wished to get rid of the culls and improve the grade; he should continue along his present line of work and not try some new plan with which he was unfamiliar. He recommended that everyone should aim at cheaper production; grow all the feed that was needed instead of depending so much on the feed stores. The use of ensilage was commended and the value of roots emphasized. A record should be kept of all cows, and only the best animals kept in the herd. As a result of the work of the Government, and the hearty support of the farmers, the average milk production per cow, per year, had increased from 2,800 lbs. in 1900 to 3,800 lbs., and that made a difference of twenty-five million dollars to the farmers. A careful account of the cost of production should be kept, and living on the farm should be cheapened by growing all the family needs to eat.

Prof. Klinck in his addresses carefully analyzed the situation and specifically eliminated those proposals for the betterment of agricultural conditions from which we could expect no help during the coming year. He pointed out that it was easy to shout "produce" to the already overworked and over-advised farmer, but the "how" was the important thing.

He added that the farmer, like every other business man, wanted some assurance as to the market for these products, which he was asked to produce in unusual quantities. How long that market would exist, no one could say definitely. Good prices, however, are almost assured for the 1915 crop.

"Whether the war is long or short," he continued, "there is every encouragement for increased production in all long-keeping, easy-shipping staples. In these lines there is little fear of over-production. Unless all signs fail, the market is assured. Warring nations must be fed. Herein lies our opportunity."

Prof. Klinck vigorously combatted three "erroneously and tenaciously held" conceptions entertained by many city people, viz.:

(1) That the virgin fertility of our soils is being rapidly depleted owing to the ignorance and wasteful practices of our unprogressive farmers;

(2) That the farmers are growing rich, while the urban dweller suffers from the high cost of living;

(3) That the remedy for this condition lies in the back-to-the-land movement, and in intensive systems of agriculture comparable with those followed in Europe.

"These three precious pieces of knowledge," according to the Professor, "belong largely in the same category with numerous other popular fallacies, of equally wide distribution, which may be classed under the head of information which is valuable if true."

He explained that while soil fertility is being depleted on the prairies, in the Eastern provinces average yields are on the increase.

Canada ranks near the bottom in production of grain per acre, but near the top in production per man.

Canada should appropriate Germany's better seed, thorough cultivation and the use of fertilizers by means of which she has doubled her production in ten years.

Cumbersome machinery of distribution accounts for two-thirds of the profits never reaching the farmer's pocket.

Prof. Klinck put his finger on perhaps the greatest obstacle the farmer will encounter in the present campaign when he spoke of farm labor as the most pressing problem for solution in 1915. This, he said, must be solved quickly if production is to be increased, as it overshadowed every other rural factor in this crisis.

It is unusually insistent in British Columbia agricultural problems, for the farms here have been outbid in prosperous times by the factories and mills. This order is now to a degree reversed, but there still remain the lack of suitable housing accommodation, which is a serious handicap for married men, and the lack of all-the-year-round employment owing to highly specialized farming.

It is most unfair, as Professor Klinck points out, to blame the farmer for the low wages he offers unskilled labor, as in any trade a beginner must serve a term at a low wage. Hand labor must, under the circumstances, be more and more supplanted by horse and other power labor.

He also warned farmers against swinging from lines of production with which they are familiar, to other lines which seemed for the moment lucrative, but which, through their unfamiliarity with conditions, might prove less remunerative.

Farm Underdrainage: Does It Pay?

By W. H. DAY, B.A., Professor of Physics

UNDERDRAINAGE has been known and practised in Ontario to some extent from the days of the early settlers, when the only materials at hand for pipes were slabs and stones. As the wooden pipes decayed and the stone ones filled with sediment, they gave place to clay tile, and for many years these have been laid in comparatively large numbers, and usually with gratifying results, as is shown by the fact that the most enthusiastic advocates of tile drainage today are those who have done most of it. Yet, despite this success, the practice of underdrainage has spread comparatively slowly. To be convinced of this one has only to travel over the Province in April, May, and sometimes in June, and note the thousands upon thousands of farms in well-settled districts, amounting to millions of acres, that are so wet in whole or in part that seeding operations are delayed from two to six weeks, and then travel again in August and see these same large areas producing only one-quarter to half a crop, while dry land in the same vicinity yields a full crop. In several cases practically whole counties need underdraining, and there are some counties where tile are not yet manufactured, and where practically no underdrainage whatever has been done. With these facts before us, and being ever more strongly emphasized by

widening experience and by accumulating data, and knowing at the same time that many farms and various districts once wet and useless have been transformed by underdrainage into the most productive in the land, one cannot but wonder why the practice has not spread more generally into other wet districts. Contact with the people tells us why. To begin with, the benefits of underdrainage are not generally known, the immensity of which truth only an intimate knowledge of the facts will reveal. Secondly, the critical operations of drainage are even less understood than its benefits—farmers, generally, have no way of telling whether they have fall enough for underdrainage, what the grade of a proposed drain should be, nor any method of digging to a grade, or planning a general drainage system, and, fearing disaster in undertaking to drain by guess, they leave it strictly alone. Thirdly, there is an impression abroad that a poor man cannot afford to drain, as the cost is so great. And, lastly, the scarcity of labor is preventing many men from draining who are fully impressed with its value. Eight years of contact with thousands of farmers eager for knowledge on drainage has led us to these conclusions; it has also shown us the need of literature to spread information and dispel illusions concerning drainage.

During 1914 we obtained our first reports from crops grown on our demonstration plots. In this practical drainage demonstration work we select a field in some portion of the Province where little or no drainage has been done, and then we drain half of the field, leaving the other half undrained for comparison. Prior to 1914 we had installed eight of these demonstration plots, and we have reports from all of them for the season of 1914. Before giving the results, it may be well to state that the precipitation for the crop of 1914, that is, beginning with September, 1913, and ending with August, 1914, is the smallest precipitation on record for any similar period; yet, in spite of this, the drained portion of our plots gave an average return of \$14.12 per acre more than the undrained portion. We have often claimed that drainage was almost as beneficial in a dry season as in a wet one—these figures are a very striking demonstration of the proof of that claim.

The prices of the different grains and straw were taken from the market reports on the day the table was made up last autumn, and are as follows: Oats, 62 cts. per bus.; barley, 63 cts. per bus.; wheat, \$1.05 per bus.; straw, \$6.00 per ton. In order to give a detailed idea of the results of these plots, the following table is inserted:

Table Showing Comparison of Yields on Drained and Undrained Lands in Same Fields.

NAME	ADDRESS	Kind of Soil	Crop	Difference in Dates of Seeding	Yield, Bushels		Gain by Draining		Value of Increase in Grain & Straw
					Un-drained	Drained	Bus. of Grain	Tons of Straw	
Neil McDougald.....	Tara.....	Clay Loam.....	Fall Wheat.....	11¼	29¾	18½	.785	\$24.05
Albert Snell.....	Hagersville.....	Heavy Clay.....	Barley.....	0	27½	38	10½	.264	8.19
Harry Hunter.....	Napanee.....	Clay.....	Oats.....	11	12¾	28¾	16	.500	12.92
Beecher Matchett.....	Peterboro.....	Loam.....	Oats.....	7	31½	67¼	35¾	.750	26.66
Walter Carson.....	Dundalk.....	Loam.....	Oats.....	11	30.6	40.6	10	.333	8.20
A. N. Lapum.....	Centreville.....	Muck.....	Oats.....	Never sowed before			28	1.20	24.56
Sandy Matchett.....	Peterboro.....	Heavy Clay.....	Mixed Grain.....	7	923 lbs.	1433 lbs.	510 lbs.	.333	8.37
Stephen Culver.....	Rainham Centre.....			No appreciable difference in crop.					

Average increase due to drainage, including Stephen Culver's plot14.12

This practical demonstration work is already producing a marked effect. In Haldimand, which was the country that, more than all others, impressed upon me the necessity of this work, tile are beginning to be laid in considerable quantities. At Cayuga two car-loads of tile were laid last fall by the farmers themselves, which is more than have been laid in that neighbor-

hood for many years, possibly more than ever laid there before. Mr. Albert Snell of Hagersville, who, like many others in Haldimand, doubted whether the Haldimand clay could be drained, informed us at the Toronto Exhibition that he intends to drain the other half of his field as soon as his three years' agreement with us is completed.

Mr. Stephen Culver's plot, it will be noted, gave no appreciable increase this year. This plot is quite rolling. However, I fully expect results there later on.

Mr. A. N. Lapum's plot at Centreville was a complete reclamation, but, owing to late frost, it yielded only 28 bus. per acre. It never grew a crop before.

There is another point worthy of mention in relation to the yields in Ontario during 1914. Although the season was the driest on record, yet in consulting the crop reports issued by the Bureau of Statistics, Toronto, I find that of seventeen crops reported the yield was above the average in fourteen cases out of seventeen. The only crops giving yields below the average in 1914 were fall wheat, peas, beans, carrots and hay (including clover and alfalfa). This unusual result is accounted for by the fact that the

soil was in remarkably good condition for cultivation last spring, and, consequently, did in a general way what drainage did, namely, conserve the moisture better than would have been the case if the soil had been in poor condition.

Now, if underdrainage will move the seeding time ahead three or four weeks, if it will lessen the labor of tillage by a half, if it will give barley, peas, oats, hay and corn twice as high and twice as thick on the ground the first week in July as on undrained land in the

same farm, at the same date and under the same tillage; if it will give fruit trees where otherwise they would not grow; if it will practically double the yield of grain, straw and hay; if it will repay the cost of drainage every year, or two years at the most, all of which our correspondents say it has done for them; if it will give ideal soil conditions for plant growth, then is it not high time that underdrainage become a general practice in all the flat, wet parts of the country, as general, indeed, as the practice of tillage?

A Visit to the Bee Farm

Wearing neither veils nor gloves, bee students think nothing of walking promiscuously among hundreds of hives, opening up and examining any which they want to study, or moving bees about in clusters, as if getting stung were a physical impossibility. Of course, to move among bees in this manner requires considerable training and experience, and the possession of supreme confidence, to avoid unpleasant consequences. Somehow bees learn to know their masters or mistresses, and it is very seldom that a true bee student is stung.

The idea in England of a regular bee institute where "apiculture," or bee raising, could be taught, was the result of the large number of applications received by Professor Herrod from various persons in England who wished to learn bee culture as a profession. Beginning with one or two bee enthusiasts, the school soon grew to such proportions that separate buildings had to be erected to accommodate scholars.

Situated on the side of a gently sloping hill, facing westward, and protected from winds, the Luton Bee Institute presents a curious appearance as you approach it from the road. Facing the roadway is a large house, behind which is an extensive plot of ground planted with very stumpy apple trees. These trees are not more than five feet in height, and yet they produce a full crop of fine apples.

It is in this curious lilliputian orchard that "Beeopolis" is situated. Looking down on the busy settlement, you see the roofs of hundreds of hives, the place seeming for all the world like a newly built Western "mushroom" town as it might appear from an airship. These bee houses are all of the same size, and are placed at equal distances, in straight rows, with tiny fruit-bearing apple trees between them. Looking more closely, you see bees constantly passing in and out, and from the whole settlement arises the hum of bee life which has made these little people become a proverb of industry.

Maeterlink and other writers have praised the bee for its wonderful intelligence; but considering the ingenious human devices for keeping it constantly at work under a system of bare-faced and incessant robbery, this estimate of bee thinking power must be lowered in the light of modern revelations.

Most modern hives are built in tiers, or storeys, which can be lifted off, and the honey is abstracted without the working bees appearing to notice that they have been raided.

Even the first layer of comb is made by machinery and put into the hives. This so-called "comb foundation" deludes the bees into thinking that the hive is especially prepared for them by their own workers, and they begin operations on the "foundation," completing the comb and filling it with honey. As each section is finished, it is slipped out of the hive, another piece of foundation inserted, and the exploited bees begin all over again as if nothing unusual had happened.

Even when the bees go on strike, or swarm out of the hives, owing to overcrowding, heat and other grievances, the human exploiter is ready for them. With a new hive all fitted up, and a specially reared "queen bee"—also a manufactured product, raised and bred separately—the indignant swarm begins life in the new hive, thinking it has won a victory, and works itself nearly to death trying to make up for lost time.

Every device of modern ingenuity is utilized in the management of bees. They are even induced to swarm

artificially; and their every move is studied so closely that there is scarcely a thought that can come into the brain of even the most intelligent bee that is not already anticipated by the clever bee-keeper who knows his business.

Without going into the details of bee life—which can be obtained in any encyclopedia—let us regard this interesting insect as a simple business proposition, by means of which we can make a good livelihood. This aspect of the subject should be particularly taken to heart in British Columbia, as the climatic conditions are especially favorable for bee culture.

There are few outdoor occupations more profitable for the farmer than the cultivation of bees. Most people seem to think that bees are dangerous; but this is a popular fallacy. A pupil in bee culture is soon taught to realize the absolute harmlessness of bees, even with the most nervous people. Only confidence and gentleness are needed to win one's way into bee favor. The finished pupil thinks nothing of allowing a swarm of bees to cluster on the bare hand or arm. The principal thing is not to close the fingers or make any movement that may hurt or injure the insects in any way. Bees will not sting unless hurt or attacked. If you hurt one bee and he stings you, others will follow suit. The bee, in stinging, liberates formic acid which excites other bees to sting in the same place.

In order to master the art of bee farming, a close study of bees, and the various devices employed in their raising is necessary. One who intends to



go in for apiculture should also become thoroughly acquainted with the life history of the honey bee, from the egg to the perfect insect. He should give close attention to the subduing of bees, working them for honey, preventing swarming, making artificial swarms or colonies, rearing queen bees artificially, introducing queens into hives, and, finally, the marketing of honey and its by-products.

No great amount of capital is required in stocking an apiary. One of the first requisites is a suitable site in a good honey district. Almost any part of this Province, except right on the coast, is exceptionally good for producing honey. Even in the extreme coast districts a small amount of honey is raised; but the dry belt, where such quantities of wild flowers bloom in the summer, and the Fraser Valley, where there is such a large supply of vine maple, fire weed, clover, etc., bees will thrive remarkably well, and, if properly looked after, will produce splendid crops of honey.

The best site for hives is on the sunny side of a hill, near grazing land. After securing a good site, the next thing to do is to buy a stock of bees. For an apiary, twenty hives is a good start. It is well to have about five hives for new stock, and also to keep a supply of hives in the flat, which may be put together when needed.

By careful management, each of the five hives used for increasing the stock can be made into three colonies, ten new colonies thus being produced.

In addition to the hives, about ten "nuceli" boxes will be needed. In these boxes queens are raised separately from the hives, and can be supplied to any new swarm which is in need of one. It is from the queen that all new swarms come, this one bee laying all the eggs for the colony. A fertile queen will last two or three years, but it is better to have a fresh queen always ready.

Queen bees are larger and longer than the workers. The workers are really undeveloped female bees; and whether or not a queen worker is produced from a cell depends entirely on the size of the cell and the amount of nourishment supplied. By proper management of one's new colonies, forty hives can be made from twenty in the course of a year.

The necessary equipment for bee raising, besides the hives and swarms, is very simple and comparatively inexpensive. A bee veil can easily be made from some kind of cheap gauze. For preparing the hive, foundation will be required; also a good supply of sections, both for the lower storeys and the upper compartments, separated from the rest by a queen excluder. A smoker for subduing especially wild bees will be found useful; and in this

country, where there is a period in which the bees are apt to need some nourishment given them, a feeder is a good thing to have. Brood chambers for the queens will be needed, too; and in preparing for the market the honey taken from the lower part of the hive, an extractor is necessary. This outlay will take very little money, and should prove a remarkably good investment.

As most of the work is done out of doors, one can scarcely imagine a more healthy occupation than apiculture. There are many branches of this occupation which make it extremely inter-

esting; and considering the small outlay of capital, the pleasant and easy work involved, and the good market for the resultant products, many people in the Province of British Columbia may find this kind of farming well worth undertaking.

It must be remembered that bee raising may be very profitably combined with other kinds of farming. While apiculture as a separate business may be made a very profitable source of income, as a side line it is likewise more than worth the trouble involved.



A Glimpse of Hope River

(Courtesy Chilliwack Board of Trade)

Individuality of the Cow

By C. F. W.

It is still possible to find dairymen who never dig deeper than the surface knowledge of the whole herd giving so much milk, counting simply the total weight sent to the factory one day, or per month, or again simply the average yield per cow for the factory season.

A plain fact that cannot be impressed too strongly is that cows have individuality; people have personality. What makes two cows yield quite different weights of milk and fat when all conditions are practically equal? Even supposing a cow's interior economy were made visible and luminous, has any man the requisite knowledge to fathom all the mysteries of milk manufacture?

We do know this: the yield of milk and its percentage of fat are apt to vary from day to day most strangely.

The first half of the milk drawn may not contain more than half as much fat as the latter half; the cow may have some slight sickness; some of delicate nervous functions may be deranged temporarily; extremes of weather, undue exposure, excitement, may all influence the yield of milk and the test. Hence it is clear that the sensible way to judge a cow's performance is not by any one test or weight, but rather on her total yield for the season. A cold, matter of fact "average" does not give necessary information; cows have individuality, which is worth studying so that they may repay their owners for intelligent handling. If you are not already testing each cow you own, write the Dairy Division, Ottawa, for forms for recording milk yields and feed.

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Vol. VI APRIL, 1915 No. 7

THE ELECTIONS.

Since our last issue, arrangements have been made for the holding of a new election for the Provincial Assembly.

The date, at first set for April, has since been indefinitely postponed, and the newspapers, of all political stripes, have been busily speculating whether it will be held soon or delayed until the late summer or fall.

The reasons given for the delay were that it was found that the voters' lists could not be ready in time to use on the date originally mentioned. There is, however, some speculation as to whether or not the real reason may not lie in a different disposition of the big guns for the engagement. Sir Richard McBride, who is now at Ottawa, is believed by some to contemplate a change to another sphere, which would give the leadership to Hon. Mr. Bowser, who is already actively marshalling the Government forces.

The Opposition will again be led by Mr. Brewster, who will run in both Victoria and in his old seat in Alberni.

Although a reorganization of the Cabinet was announced by the Premier almost simultaneously with dissolution, the only change so far is that foreshadowed in our last issue, namely, the resignation of the Minister of Agriculture, Hon. Price Ellison. Mr. Ellison was curiously short-sighted in making live stock purchases from the Colony Farm, owned by the Government, and his defence in the House that he had been the loser by the transaction showed an entire lack of appreciation of the grave principle at issue.

It is a matter of great regret that a gentleman, whose personal honor is of the highest, should have placed himself in such an indefensible position. That his neighbors continue to regard him with their old confidence is well evidenced by the fact that he has again been nominated for the House.

The portfolio of Agriculture is being administered, together with that of Finance, by Hon. Mr. Bowser, and this, together with the fact that no other changes have been made, despite the Premier's promise, seems to lend color to the opinion that the Attorney-General will himself have the task of reconstruction.

INCREASING PRODUCTION.

In the conferences which have been held recently emphasizing the increase of production as a patriotic duty, due emphasis has been laid by discriminating agricultural educationists like Professor Klinek, and others, on the dangers which every producer must consider in carrying out this policy.

Chief of these is the possibility of a quicker return to normal conditions, following a speedy termination of the war, than is anticipated; and the producer must keep this in view, particularly where he is embarking in branches of agriculture where a heavy plant or permanent investment is required, or where an extended period is required to obtain returns.

Obviously the best lines to develop are those where investment is small and increases in output rapid.

Two of the most attractive are sheep breeding and poultry raising.

Almost every district in this Province is possible from the sheep raiser's standpoint, and many have advantages offered by few other localities on the continent. Herds multiply rapidly, yield a valuable by-product in wool, and are useful in the destruction of weeds, while mutton commands a good price in almost all markets. Good ewes are not dear, and even well bred sires come well within the capacity of the ordinary purse. The supply of mutton is always below the demand.

The arguments for sheep raising are even more marked in the case of poultry. A very large flock can be quickly built up at a relatively small expense; the bye-product of eggs yields a steady income, and market prices, excepting under unusual circumstances, are good. With regard to the demand, it need only be pointed out that last year Canada imported over \$200,000 worth of poultry in excess of her exports, while of eggs she imported the enormous amount of \$2,500,000 over her exports.

These are the somewhat surprising, if not alarming, statements made by the Poultry Division of the Dominion Department of Agriculture, from which also emanates the important announcement that Britain took from Belgium, France, Russia, Germany and Austria-Hungary in the available months of 1914, three million dollars' worth of

poultry and 136,000,000 dozen, or sixteen hundred and thirty-two million eggs - sufficient to give two million two hundred and thirty-five thousand six hundred and sixteen people two eggs apiece for every day in the year. Such facts must surely convey a world of meaning to poultry breeders in Canada. These facts are further emphasized by the statement that the average egg yield per hen in this country is but 80 per year, which we are further assured by experts could, by careful selection, feeding and housing, be increased to 180 eggs per hen per year.

FARM CREDITS.

The Act respecting aid to farmers, passed during the session just closed, and referred to at some length in our last issue, does not come into effect until formally promulgated by Order-in-Council.

While this is perhaps disappointing to some who have eagerly awaited the measure of relief, it has the virtue that the Government can take better advantage of the money market by this method than if obliged to at once launch the scheme. Obtaining money borrowed during the present condition of the market would cost the farmer approximately what he could obtain it for from ordinary sources during normal times.

BUY IN BRITISH COLUMBIA.

Analyzed down to primary principles, it will probably be found that patriotism contains some refined forms of selfishness. We are ready to fight for our country because we love it, it is true, but also, no doubt, because we want to preserve it, and that portion of it which we call our own, for ourselves.

In asking our readers to purchase, as far as possible, goods manufactured in B. C., we do not hesitate to put the baldly selfish side of the case to them. In a few more months this paper, and the press of the whole Province, will be urging our city friends to insist on fruit grown in this Province being supplied them by their grocer.

Last fall the effects of that campaign were most marked. This year more can be done, and it can be made to apply not alone to apples, but to strawberries, to apricots, to honey, and to a score of other products which might be mentioned.

But if our producers expect preference to be shown their output, they in turn should not forget that these benefits should be reciprocal. A perusal of our advertising columns will show an amazing number of articles now pro-

duced in B. C., and which must rely primarily and principally for success on the favor of provincial consumers. Boots, paints, fruit labels, land clearing machines, fruit packages and wrapping papers, and many other articles regularly required by our readers, can now be obtained locally, and equalling, at least, in price and quality, that which has hitherto been imported.

Patronize these dealers. They are your customers. The more goods of theirs which you use, the greater will be their buying capacity for the fruit which you grow.

AGRICULTURE IN SCHOOLS.

The British Columbia Department of Education has decided to include agriculture as an optional subject in the high schools, thereby making it possible for boys to pursue this branch of study after leaving the public school. Competent teachers, with special qualifications as instructors in the various branches of agriculture, will be appointed in these high schools, which will be chosen from those schools situated in the best agricultural districts. The agricultural specialists, in addition to teaching agriculture proper, will also assist in teaching some of the regular science work of the high school, especially the biological part. They will also spend a part of each week supervising the work in elementary agriculture and school gardening in the public schools of the districts or municipalities in which the high schools are situated. Extension classes in agriculture will be opened in these particular high schools for boys and young men who are not regular students in the high school and who can give only a portion of their time to such studies. These classes will be held either during the day or in the evening, as may be found convenient or desirable.

IMPROVEMENT AND INCREASE.

The advice given in the most recent announcement of the Department of Agriculture at Ottawa to make your land produce more, cannot be over-emphasized. Millions of bushels, rather than the cultivation of excessive acres, should be Canada's aim. Improved production is only possible by the use of good, pure seed and by assiduous and knowledgeable attention to the soil. Experience is undoubtedly in farming, as in all other objects in life, the best instructor; but just as

fertilizers help the soil, so does acquiring the results of experiments made by others make the road easier to the lesson that is to be learned. Never was there so much necessity for thoroughness and earnestness as now, when the markets of the world are wider open, when they are being shifted and former occupants are receiving notice to quit.

As proof that there is abundant room for increased production by improvement, an official statement, as follows, is presented of the average yield of various products last year, and of the average that is possible:

	Average.	Possible.
Fall wheat	20.43	52.00
Spring wheat	14.84	33.00
Barley	16.15	69.00
Oats	36.30	91.00
Corn, grain	70.00	200.00
Corn, ensilage, tons	12.00	19.00
Peas	15.33	37.00
Beans	18.79	50.00
Potatoes	119.40	450.00
Turnips	421.81	1000.00

By "possible," it is explained, is meant results actually obtained at the Experimental Farms and by many farmers under intensive cultivation.

While such results may not be obtainable in every case on the average farm, strict attention to the selection of seed, the use of fertilizers and thorough preparation of the soil will accomplish much. It is estimated that in this way the value of the crops of Canada might be increased in a good season by \$150,000,000, which would be more than enough to meet interest on all the money borrowed by the Dominion from Great Britain or invested in this country.

This is not a burden placed upon the agricultural community; it is a task it is asked to undertake for self-interests and to make the Empire more self-sustained. It is the unity of patriotism and production, for the encouragement of which bulletins and pamphlets giving results of actual experiments by practical men, as well as vast stores of useful information, can be obtained free on unstamped application to the Publications Branch, Department of Agriculture, Ottawa. The best method of procedure is to send for a catalogue and then forward your order; but, to save time, it is announced that bulletins on wheat, oats, corn, barley, peas, beans, potatoes, turnips, onions or live stock will be mailed immediately on notification of those wanted.

Men's Hats

The new spring blocks are now ready for your inspection--this is an appropriate and favorable time for hat buying --it is particularly favorable because the stock is most complete with what is new and fashionable.

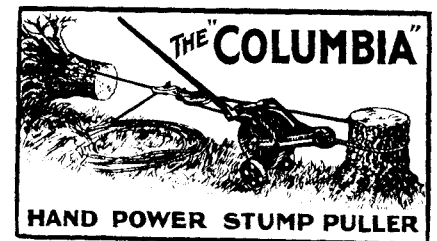
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POULTRY SECTION

Geese for Profit

The goose flock should be started with the best birds that you are financially able to buy. A pair that has not been conditioned for the show room that season is best, for a fat goose seldom lays with any degree of regularity; the eggs are misshaped and weak shelled, often infertile. Buy geese in preference to eggs, as you see the breeding stock and know just what characteristics to expect in the young. You also have the parent birds to attend to the incubation of the eggs and the brooding of the flock.

The breeding stock should have a yard or pasture with an open shed in which to shelter from snows and wind. The ground floor should be covered with straw to absorb the moisture and prevent leg disease. Feed the breeding stock sparingly, giving very little corn. A part of the chicken mash in extreme weather, potato parings, mangels and clover or alfalfa scalded makes a much relished ration. There will not be over a month or six weeks of weather bad enough to prevent them making their own way.

Give them a swimming pool of some description for breeding season. If you want high fertility in the eggs you must follow nature's plan, for it is the natural instinct of geese to mate on the water, and in no other way will you get 100 per cent. of fertile eggs. They take also the utmost care regarding their bath and are always free from vermin and almost exempt from diseases of any kind. Some authorities claim to raise geese without water, save for drinking purposes. Try it if you will, but many of your eggs will be clear, and your birds ragged and unkempt.

The geese usually pair off, and sometimes continue with the same mates in the most perfect domestic tranquility the rest of their lives, establishing a home each season and rearing their young. You will fail in a large measure if you attempt to mate three or four geese with only one gander. The geese are quarrelsome and fighting, and infertile eggs will generally result. If the Ganders fight, select a mate for each one and shut them from sight of the others until the nesting idea is formed, then they may run together again. If you visit the nests and remove the eggs, you start a discord; leave them to the goose and she will cover them so that no wind or tem-

perature change will injure them. Geese have been known to go to the nests after sundown and pile on additional sand or straw if the night bid fair to be a cold one.

The goose lays from 14 to 20 eggs; 16 is a good flock average. The practice of having the goose lay two litters of eggs in one season is not advisable. Let her incubate the first eggs and she will raise at least 14 goslings from 16 eggs. Goslings are sometimes hatched in incubators and under hens; in both cases the eggs must be turned and sprinkled, and no amount of labor will bring the same number of sturdy goslings that mother goose will hatch. The second laying makes the goslings late and small, and if it is a season of drouth the grass is too tough and dry for them to relish, and a gosling without grass is worse than none at all.

Geese generally hatch their young in the month of April. They start them with the grass, and it is tender enough then for them to handle nicely.

When seven months old they are generally about grown, weighing from 14 to 17 pounds. The standard requires the young goose to weigh 16 and the gander 18 pounds, but if they are two pounds lighter and have good bone and broad frame, they can be conditioned to weight in 10 days or two weeks. If they are to serve as breeders instead of in the showroom, leave them in thin flesh, for the buyer who knows his business wants bone and muscle rather than fat and feathers.

For their beauty and purity, the Emden geese are desirable; but it would be foolish to raise Emden geese for market purposes, as it will take many years to supply the demand for standard breeders, but the market affords a good place for the culls. All flocks have culls. They may be heavy enough, but have that small spreading leg we are so anxious to eradicate. Their wings may droop or bow wrong, or they may be small boned or off in general conformation. But when sold dressed, they more than pay the feed bill of the rest of the flock, and their feathers are preferred above every other fowl, excepting the ostrich. The carcass when dressed is as white as marble, and free from unsightly down or pin feathers; it commands from 3 to 5 cents more per pound than the dark skinned geese. In the large cities the guaranteed Emden feathers bring from

\$1.00 to \$1.30 a pound, and one goose will yield a half-pound of feathers every six weeks. Show birds and breeding geese should not be picked.

As to the actual profit in geese, three pairs of splendid Emdens should make the foundation for a fine flock. They should be from two to ten years of age, and would cost about \$30. They should mature, at the least calculation, 40 goslings, 35 of which should be as good as the parent birds. These latter should bring as breeding stock \$5 each, or \$175 for your \$30 invested. The other five, fattened for table or market, would pay for the feed of the entire flock for the summer. So if you want to turn grass into greenbacks, raise Emden geese.

EGG-LAYING CONTEST.

Figures for the Period October 10, 1914, to March 9, 1915.

Fourth international egg-laying contest, held under supervision of the Provincial Department of Agriculture, at the Exhibition Grounds, Victoria, which commenced October 10, 1914, and will close on October 9, 1915; 12 months.

Total eggs laid from October 10, 1914, to March 9, 1915:

Class I—Non-weight Varieties. Six Birds to a Pen.

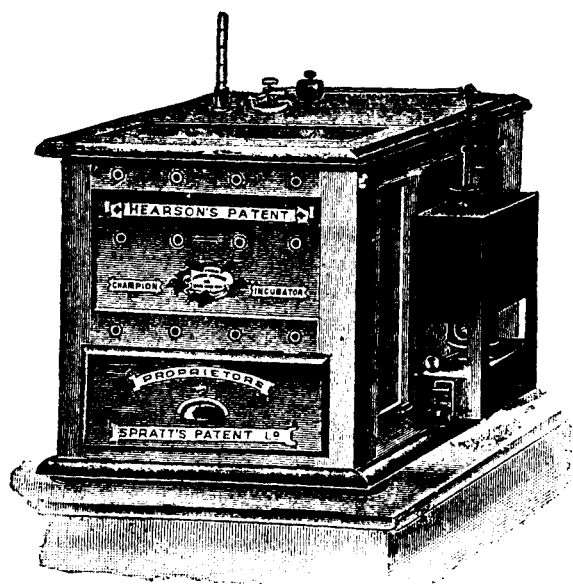
Pen.	Owner.	Months Total Eggs	Eggs
18	L. R. Hoss, Cowichan, B. C., White Leghorns	103	490
5	E. W. Bstridge, Duncan, B. C., White Leghorns	110	403
3	Koksilah Poultry Ranch, Cowichan, B. C., White Leghorns	98	394
10	G. O. Pooley, R.M.D.L., Duncan, B. C., White Leghorns	71	384
13	H. A. Hincks, Langford Stn., B. C., White Leghorns	108	384
9	R. W. Chalmers, Thrums, West Kootenay, B.C., White Leghorns	88	382
16	A. Unsworth, Sardis, B. C., White Leghorns	99	360
4	Norie Bros., Cowichan, B. C., White Leghorns	111	338
2	J. C. Butterfield, Saanichton, B. C., White Leghorns	100	304
17	L. H. Ashby, Cowichan, B. C., White Leghorns	101	294
1	W. Senior, 517 Langford Street, Victoria, B. C., White Leghorns	110	268
6	W. Miller, Lazo P. O., Comox, B. C., White Leghorns	118	255
19	Mrs. A. Brooke, North Arm P. O., South Vancouver, White Leghorns	92	255
8	T. H. Lambert, Cortes Island, B. C., White Leghorns	65	229
7	Seymour Greene, Duncan, B. C., White Leghorns	79	220
12	O. P. Stamer, Cowichan, B. C., Anconas	88	203
15	L. F. Solly, Westholme, B. C., White Leghorns	81	192
14	P. B. Darnell, Royal Oak, B. C., White Leghorns	78	163
11	J. A. Thurston, Central Park, B. C., Silver Campines	58	134

Class II—Weight Varieties. Six Birds to a Pen.

40	D. Gibbard, Mission City, B. C., Barred Rocks	139	496
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Spratt's

Hearson's "Champion" Incubators and Foster-Mothers Chicken Meal—"Chikko" and "Mebo"



THE COMBINATION THAT INSURES SUCCESS START RIGHT

Spratt's poultry and pet stock foods and appliances are acknowledged by breeders and fanciers the world over as being **The Best**.

The Best is the Safest and Cheapest in the Long Run.

The Hearson Incubator will hatch every fertile egg, in any temperature and at any altitude. It is more reliable than a hen, and is always ready when the eggs are. There is no incubator made to equal Hearson's. The world-wide high reputation we have for our foods has been made on the quality of our manufactures, and that reputation of a life time is at the back of our guarantee of the Hearson.

The ease and certainty with which chicks can be hatched in Hearson's "Champion" Incubator is fully demonstrated to the public at our show-rooms, **235 Regent Street, London W.**, where the process is going on daily and has been for the past **34 years**, every hour of the day and every day of the week.

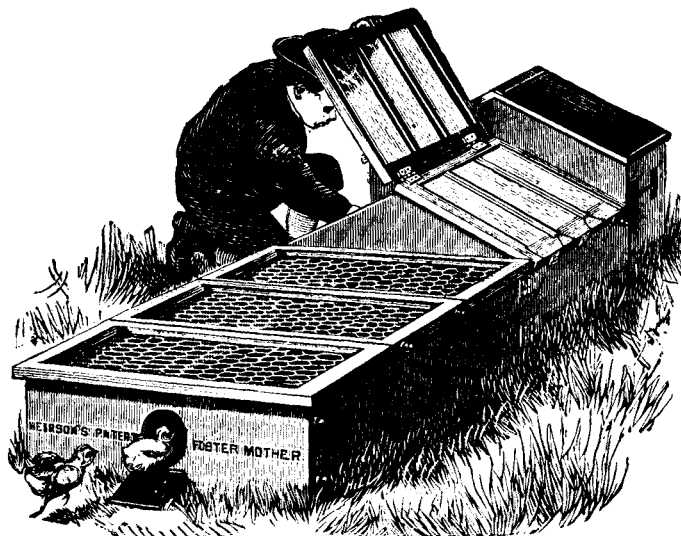
"The Problem Solved" mailed free upon request

HEARSON'S Patent "Hydrothermic" FOSTER-MOTHER

AN OUTDOOR REARER for use in Summer or Winter

This Foster-Mother is acknowledged to be the most complete and satisfactory yet offered to the public, and entirely overcomes the difficulties experienced in the use of all previous apparatus of the kind.

The Hydrothermic Foster-Mother consists of three chambers, viz., a sleeping compartment or dormitory, a glass-covered run and a wire-covered run. The Dormitory is heated by means of a petroleum lamp, which burns in a wind-proof lantern situated at the rear; this imparts its heat to a copper tank filled with hot water which occupies the upper part of the Dormitory.



Chicks make remarkable progress when reared on **Spratt's Chicken Meal and "Chikko."** They grow rapidly, feather quickly, and keep free from disease. Every day their digestive organs become stronger and stronger and their constitutions more developed; consequently they are much healthier and give less trouble than chicks fed on other foods, which do not contain such highly nourishing and vitalizing properties.

Spratt's Chicken Meal is a cooked warm and nourishing food, a splendid combination of our pure "Meat Fibrine" and the finest selected meals (cooked), and a food of immense value as a frame and body builder. As the morning soft feed, there is no food to equal it.

Spratt's "Chikko" is a combination of Egg Flake, Dried Flies, Ants' Eggs, Seeds and Grains, and should form the diet for the rest of the day, especially as the evening feed, as it is unrivalled for sustaining the chicks during the night fast.

When eggs are scarce, every poultrykeeper should feed **Spratt's "Mebo"** (Meat and Bone), the food for prolific egg production—makes hens lay more and more eggs.

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Showrooms and Warehouse: 37-39-41-43 Alexander St., Vancouver, Canada

27 G. D. Adams, Box 840, Victoria, B. C., White Wyandottes.....	108	473
23 Dean Bros., Keatings, B. C., White Wyandottes.....	80	431
35 S. Percival, Port Washington, B. C., White Wyandottes.....	94	386
20 G. T. Corfield, Corfield, Koksilah, B. C., S. C. Reds.....	125	365
33 P. S. Lammpan, Law Courts, Victoria, B. C., S. C. Reds.....	90	365
29 M. H. Rutledge, Sardis, B. C., S. C. Reds.....	85	360
31 R. N. Clerke, Vernon, B. C., S. C. Reds.....	120	359
24 V. T. Price, Cowichan, B. C., S. C. Reds.....	100	354
37 A. W. Cooke, Box 663, Kelowna, B. C., Buff Orpingtons.....	95	349
34 E. D. Read, Duncan, B. C., White Wyandottes.....	100	347
38 J. H. Cruttenden, 237 Princess, Westminster, Buff Wyandottes.....	87	339
30 W. S. Stewart, 1473 Fort, Victoria, B. C., White Wyandottes.....	75	308
21 E. W. Frederick, Phoenix, B. C., R. I. Whites.....	82	302
22 Jones & Rant, R.R.1, Sidney, B. C., White Wyandottes.....	73	292
36 C. W. Robbins, Chilliwack, B. C., Buff Orpingtons.....	98	270
25 Reid & Greenwood, Box 928, Victoria, B. C., S. C. Reds.....	64	250
28 W. H. Van Arum, 2434 Carboro Bay Road, Victoria, S. C. Reds.....	90	210
39 Mrs. J. H. Gillespie, Fairfield Road, Victoria, W. Orpingtons.....	91	210
32 W. E. Moore, Okanagan Landing, B. C., White Wyandottes.....	83	205
26 A. E. Smith, Luxton, R.M.D. 2, Victoria, B. C., S. C. Reds.....	73	158

Broody—Class I, Pen 10 (1); Class II, Pen 22 (1); 23 (1); 37 (2); 39 (2); month's total; Class II, 1953; Class I, 1766. Itain fell on six days; little frost early in month. W. H. Stroyan, poultryman; J. R. Terry, director.

CHICKENS DYING IN THE SHELL.

There is no doubt that artificial hatching is gaining ground rapidly, but there are many points which give trouble, and it is more especially in the early part of the season when complaints of dead-in-shell chickens are numerous. We must not be too ready to blame the incubator when it may be the stock birds that are at fault. Eggs should come from birds in sound condition, physically strong, and suffering from no deformity, and, if possible, kept on free range.

A certain number of breeders mate too many hens with a cockerel during the early part of the season. Others believe that too few hens are just as bad as too many. This is perhaps quite right. It is most difficult indeed to tell exactly how many females should be mated to a male; but, in the first place, we must consider the weight of the birds, say, in Buff Orpingtons, White Wyandottes, and Plymouth Rocks, eight or nine pullets will be quite ample to mate with a strong, vigorous cockerel during January and February. Later in the season, if the birds are all allowed free range, the number can be safely increased to twelve. One dozen Leghorn hens to a good cockerel will be quite right, even in the early part of the year. Those who will persist in trying to breed from old male birds mated to pullets must be prepared to put up with many disappointments. These males do not seem to get into proper condition until the beginning of March. Usually a large percentage of the eggs produced by the pullets are

infertile, and many others contain weak germs. Even now we must admit that hens can hatch out eggs which no incubator can, despite the best management. Feeding and housing play a great part in obtaining eggs that will hatch out well. Over-feeding on soft food and a great deal of maize has a tendency to produce infertile eggs.

Another feature, and one which perhaps is more important than all the rest where artificial incubation is concerned, is the absolute necessity of using nothing but fresh eggs, that is, those not more than three or four days old. If eggs could be put into the incubator the same day as laid, so much the better. Those who mix up eggs laid on different days in the same machine cannot expect to do well. There will have to be a right system of management, and this must be rigidly followed out, or artificial incubation during the winter months will not be a success. Try to attain a steady temperature of about 104 degrees, and if the weather is exceptionally cold, perhaps with several degrees of frost, allow the thermometer to rise to 105 degrees. Give very little cooling during the first week, about five minutes during the second, and ten minutes daily during the last week.

As regards moisture arrangements in winter, a great deal is not required, but during the last few days a flannel which has been dipped in hot water can be placed over the eggs, and allowed to remain, with the door closed, about twenty minutes. If this is done every day, night and morning, the eggs should obtain all necessary moisture. When the hatching period arrives do not be too eager to count the chickens or play with them; always remember that the incubator drawer must be kept closed at this period. Every time the door is opened there is an inrush of cold air, and the eggs which are just chipping or about to chip suffer severely. Many chickens cannot get out of the shell owing to being chilled at this critical period.

The Cranbrook Poultry Association is doing much to stimulate interest in poultry raising among the young people by arranging the Cranbrook boys' and girls' poultry competition, which may be entered by any boy or girl over ten and under fifteen years of age. A full set of rules governing the competition has been drawn up by the association. All eggs—obtained from the secretary—are to be set in the month of April, and the birds to be shown at the fall fair, or such place as decided on by the Poultry Association; and all the birds hatched must be shown, or two birds forfeited to the association.

TIMELY EXTRACT FROM OLD COUNTRY JOURNAL.

There are still a large number of poultry raisers who endeavor to raise stock by one or other of the extreme methods commonly known as the "dry food" and "soft food" systems, in spite of the fact that they own that their success is only of second-rate order, due mostly to the mortality which exists among the birds when they reach the pullet stage, mortality brought about through the ravages of diarrhoea and enteritis.

The "dry food" system, as is well known, is one under which young chicks are allowed to consume nothing but dry grain (either whole or crushed) for the first few weeks of their existence. Now, such a system has several advantages—for the poultry-rearer only. It calls for much less trouble in its preparation; is easy and clean in the handling, and can be given and consumed in unlimited quantities; and is, in the long run, apparently cheaper. But the chicks fed on the dry food system are bound to suffer in the end.

To prove this statement: It will readily be conceded that a chick's stomach must be extremely delicate; and that consequently its digestive organs are not fitted to grapple with a diet of hard, dry corn as the first morning meal, because several hours having to elapse before the juices of the stomach are able to "break down" that grain for the purpose of extracting its highly nutritive powers, the bird, as a consequence, is not invigorated for a considerable portion of the morning, vitality is lowered (which thus predisposes to catching cold), and growth is retarded.

The "soft food system." This, again, is a plan adopted by rearers of the old school, who keep the chicks rigidly away from all forms of dry food, and allow them to consume nothing but crushed meals made into a sort of mash or porridge, to be given at stated intervals through the day. Soft foods thus given are very readily digested by the chicks. Being for the most part cooked meals, the first and second processes of digestion (which would under ordinary circumstances be carried on by the birds themselves) are already accomplished for the birds.

The natural consequence is that the digestive organs lose "tone," the muscles become atrophied for want of proper exercise, and the bird therefore becomes, in later life, incapable of digesting any of the hard, dry foods which must necessarily form a large part of its diet. Death thus intervenes to save the bird from slow starvation; and it generally appears in the form of enteritis or phthisis.

The "middle course." The middle course is good, common-sense, and is readily understood. It is the plan which overcomes all objections to the extreme methods of dry and soft feeding, and yet combines their good points so as to derive the greatest amount of benefit from the food consumed.

By providing the birds with such a soft early morning feed as Spratt's Chicken Meal, they are given growing power immediately it is consumed, because this meal is a cooked food, and therefore predigested, thus allowing their stomachs to quickly assimilate its health and strength-producing properties at once, and so supply their bodies with growth and sustenance.

Again, by supplying an evening feed of such food as Spratt's "Chikko," provision is made for giving sustenance that will last the whole of the long night's fast.

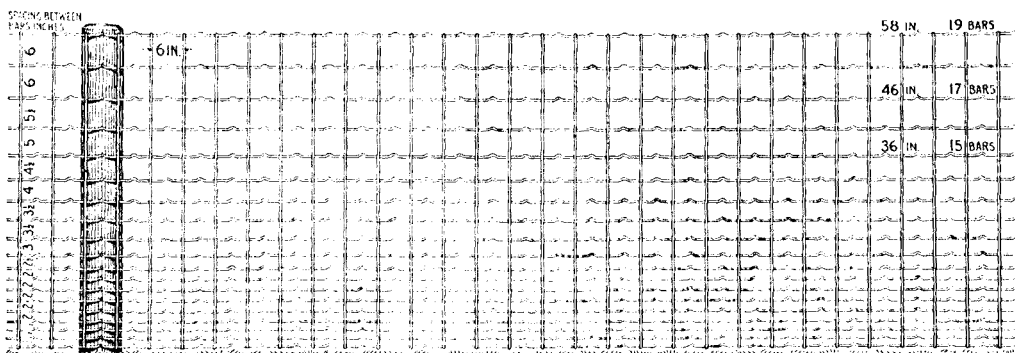
Spratt's "Chikko" is an ideal combination of the best quality grains and seeds, whole and crushed, together with a mixture of Egg-Flake, Dried Flies, Ants' Eggs, etc., which, being in a raw state, are slow in the process of digestion, and thus sustain through the long hours of night.

Another excellent advantage of the combined system of dry and soft feeding is that the digestive organs themselves never become overtaxed during chickenhood, and the two systems of feeding fit the birds for their work in later life; whereas, if they are overtaxed during their chicken stage by dry feeding alone, or not sufficiently exercised by the soft feeding alone, they have not then the strength to withstand consequential ailments of one kind or another which sooner or later make their appearance in the run. One of the commonest of these is diarrhoea, and only those who have experienced the ravages of this dire disease know its evil in the poultry yard.

From an experience (extending over many years) of the results of the three methods discussed above, we are led to the conclusion that the combined diet of Spratt's Chicken Meal as the early morning soft warm feed, and Spratt's "Chikko" as the dry, sustaining evening meal, produces the best results among young, growing chickens, and from early morning to chilly eve they should be given alternately to derive the greatest advantage from their use.

"The well-being of a people is like a tree; agriculture is its root, manufactures and commerce are its branches and its leaves; but if the root be injured, the leaves fall, the branches break away and the tree dies."—The philosophy of one of the sages of China.

"PITTSBURG PERFECT" POULTRY AND GARDEN FENCE



Winner from East to West as the most effective and economical Poultry Fence, welded by electricity. EVERY ROD GUARANTEED. Write for catalogue and prices to

A. I. JOHNSON & CO., Wholesale Agents

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"Pittsburg Perfect" Electrically-welded Fence, "Prairie State" and Candle Incubators, Universal and Portable Hovers.

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**Thoroughbred JERSEYS
Thoroughbred Yorkshires**

One Jersey Bull, eight months old, grandson of Noble Oaklands (sold by auction May, 1911, for \$15,000), and of Lady Viola (sold for \$7,000 in 1911 and took First Prize over Island of Jersey in 1904).

Twenty two-weeks old thoroughbred Yorkshire pigs.

J. J. LOGAN, Glenwood, Agassiz, B.C.

COALEY FAWN DUCKS

Won 1st Duck and 1st Drake at Provincial Poultry Show, 1914. **THIS IS THE COMING DUCK** for show and utility. Eggs \$3.00 per doz.

Write for full particulars.

Mammoth Bronze Turkeys

Fine healthy stock. \$4.00 per 9 eggs.

G. LONGBOTHAM,
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**PEDIGREE
YORKSHIRE PIGS**

Fine young Sows and Boars,
six months old

CROSLAND BROS.,
Cedar Creek, Duncan, B. C.

PURE BRED AYRESHIRE

Choice Bulls from Record of Performance Cows. Females of all ages. All tuberculin tested. Prices reasonable. Apply to

JOSEPH THOMPSON,
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Sardis, B. C.

*A Breeder's Card, this size,
will cost you only \$1.25 per
month.*

READY FOR USE

Bordeaux Mixture in Powder for
Winter Spraying.

THE MICHAUD'S CHEMICAL PRODUCTS
CENTRAL PARK, B.C.

CLASSIFIED

WANTED—To hear from owner of good farm for sale. Send cash price and description. D. F. Bush, Minneapolis, Minn.

WANTED—By Englishman, position on farm (V. I. preferred), where he would be given opportunity to gain experience of all branches. Some wages required. Please give details first letter to save time. Communications addressed to Fruit & Farm Magazine, 615 Yorkshire Bldg., Vancouver, B. C.

THINGS TO REMEMBER ABOUT THE BREEDS.

1. The meat breeds comprise the Brahas, Cochins, and Langshans. The Brahas are the largest, followed by the Cochins, and they, in turn, by the Langshans.

2. Of Brahas there are two varieties, the Light and Dark.

3. All three breeds resemble each other in that they are large, slow-moving fowls with feathered legs.

4. There are four varieties of Cochins and two of Langshans.

5. The Dorking is an old English breed. It is noted for its fine table qualities. They are being bred in this country.

6. The egg breeds are medium or small in size, and of a nervous, active, excitable disposition. Of these breeds, the Leghorns are most popular.

7. Laying hens should not be frightened. This will restrict egg production.

8. The egg breeds are poor sitters.

9. On account of their close feathering, the egg breeds are not able to endure cold weather so well as the more loosely feathered varieties of fowls.

10. There are seven standard varieties of Leghorns, and two of Minorcas.

11. The Minorcas are larger than the Leghorns and lay larger eggs.

12. The Hamburgs are the smallest of the egg breeds. They are good layers, but their eggs are small.

PAINT IN THE POULTRY YARD.

A Coat of Whitewash Is the Cheapest Covering.

All buildings and appliances on a poultry farm will be improved greatly, both in appearance and in serviceability, by the addition of paint. One may buy ready-mixed paints or may purchase pigments and oil, and mix them. All surfaces should be clean and dry before they are painted. Use a priming coat made of equal parts of paint and linseed oil and cover with one or more coats of paint, which should be thoroughly rubbed into the surface.

Whitewash is the cheapest of all paints and may be used either for exterior or interior surfaces. It can be made by slaking about 10 pounds of quicklime in a pail with two gallons of water, covering the pail with cloth or burlap, and allowing it to slake for one hour. Water is then added to bring the whitewash to a consistency which may be applied readily.

A weather proof whitewash for exterior surfaces may be made as follows: (1) Slake one bushel of quicklime in 12 gallons of hot water; (2) dissolve two pounds of common salt and one pound of sulphate of zinc in two gallons of

boiling water; pour (2) into (1), then add two gallons of skim milk and mix thoroughly. The whitewash is spread lightly over the surface with a broad brush.—Maritime Farmer.

CARDINAL FACTS.

Everybody can do a little.

Every man should do what he can.

Every woman should do what she can.

Improved production means increased production.

Canada's future depends upon our actions of today.

In serving the Empire, we are serving ourselves.

She imported 80,013,879 bushels from the United States. She also imported 12,789,969 bushels from Russia and Central Europe.

Great Britain imported 24,148,833 bushels of barley in 1913 from Russia, Roumania, Turkey, Germany and Austria. From Canada she took 5,977,533 bushels, or less than a fourth.

Great Britain took 22,454,683 bushels of oats from Germany, Russia and Roumania in 1913, of which one-half was from her bitterest and most savage enemy of today.

Great Britain imported 185,125,000 bushels of wheat from August 1, 1913, to July 31, 1914. Russia exported 163,267,000 bushels, and Roumania 45,643,000 bushels in the same time. How



Inspecting the Brood

(Taken with an Eastman Kodak)

Markets are not created, won and held in a day.

Now is the time to prove ourselves the Granary of the Empire.

We have the soil, we have the resources; we must have the energy to use them to the greatest advantage.

As we acquit ourselves at this crisis, so will be our prosperity and pride in the years to come.

With more than half of productive Europe engaged in war, and large sections decimated, other countries, and especially those forming the British Empire, will have to make up huge deficiencies, both of foodstuffs and material.

Great Britain imported 51,786,915 bushels of wheat from Canada in 1913.

far is Canada going to help to make up the deficiency?

Great Britain imported, from August 1, 1913, to July 31, 1914, 54,307,000 bushels of oats. Russia exported 34,750,000 bushels, Germany 25,077,000, and Roumania 17,195,000 bushels. Who is going to make up this deficiency of seventy-five million bushels?

NEW WORLD'S EGG RECORD.

Wonderful Performance of Six White Wyandottes in England.

Six white Wyandottes have gained another award for the skilful British utility poultry-keeper. These hens have set up a world's record for laying

during the first four months of the Utility Poultry Club's ten months' laying contest (at the Harper Adams Agricultural College, Newport, Salop) 523 eggs, valued at £3 14s. 11¼d., or an average of 87.17 eggs per bird. They hold the premier place so far in the contest now running, says the London Daily Mail.

The previous best world's egg record for sixteen weeks was 492 eggs laid by six white Wyandottes in the club's contest, 1913-1914, held at the same college.

English hens are also laying up to their tradition in the Panama-Pacific International contest now in progress at San Francisco. A pen of English white Wyandottes, sent all the way from Lancashire, laid the most eggs during the past month, and now holds second place, with only four eggs behind the winning pen's total.

ON SAFE GROUND.

With a fraction of uncertainty on one or two points, such possibly as high prices for feed, scarcity of help, the dairy farmer, nevertheless, the whole Dominion over is actually engaged now in planning for a more abundant milk harvest than ever from his faithful, patient cows. The prudent, far-sighted man has cogitated nearly all points, such as seed selection, labor-saving implements, better stables, more alfalfa, a new silo, abundant water and the best cultivation he can possibly give to the land, owned or rented.

On many dairy farms, however, one more point needs immediate attention before the herd owner can truthfully be said to be on really safe ground; for if the abundant crop or the expensive feed purchased is given to a cow, or cows, whose dairy ability is lacking, sadly lacking, some one is bound to receive an unpleasant surprise and disillusionment. If dairy ability means ability of the cow to turn feed into good milk at low cost, is it not the step of wisdom to make sure that each cow on the premises does possess that ability?

Where no cow-testing has been practiced, a moderate estimate is that three out of twenty cows consume feed valued as high as the price received for the milk they yield. Dairy records aim at detecting bovine crooks; but further, a study of records, kept so easily, show the dairyman which cows produce the most milk and fat, and which produce them the cheapest (for instance, 63 or 95 cents per 100 pounds of milk), so any man keeping dairy records is speedily on the home stretch towards the winning post inscribed, "Each cow pays a good profit." That is safe ground for the dairyman.

"Our Length of Life Would Be Greatly Prolonged."

PROF. METCHNIKOFF

One of the world's greatest scientists has specifically stated that if, in infancy, our colons could be removed, we would be freed from the most prolific cause of human ailments, and live perhaps twice as long as now.

This is a strong statement, but not so surprising when we know that physicians are agreed that 95 per cent. of all illness is caused by accumulated waste in the colon (large intestine), that the first step a physician takes in all cases of illness is to give a medicine to remove that waste—and that probably more drugs are used for that purpose in this country today than for all other purposes combined.

The foods we eat and the manual labor or exercise that we fail to perform, make it impossible for Nature to act as thoroughly as she did in the past, in removing this waste, and so we are all, every one of us, affected by it.

This, and this alone, is responsible for the conditions known as "costiveness," "constipation," "auto-intoxication," "auto-infection," etc., which are all the result of accumulated waste.

You see, if the presence of this accumulation would make itself evident to us in its early stages, we would be better off, but it does not, and there lies the pernicious danger of it.

For this waste is the worst of poisons, as we all know—an atom of it in the stomach would inevitably produce Typhoid; and the blood constantly circulating through the colon, absorbs and is polluted by these poisons, making us physically weak and mentally dull, without ambition and the power to think and work up to our real capacity.

You know how completely a bilious attack will incapacitate you, and it is safe to say that such a complaint would be absolutely unknown if the colon were kept constantly free of accumulated waste.

Now, the reason that physicians agree that 95 per cent. of illness is due to this cause is that it weakens our powers of resistance so much as to make us receptive to any disease which may be prevalent, and permits any organic weakness we may have to gain the upper hand.

The effect of drugs is only temporary; they force Nature instead of assisting her, and the doses have to be constantly increased to be effective at all. Here is what

the journal of The American Medical Association says:—

"Every drug exerts a variety of actions, but only a few of the actions of any drug are of benefit in any given condition; the others are negligible or detrimental."

It may be surprising to you to know, however, that over a million Americans and Canadians have learned and are now practicing the surest and most scientific method of keeping the colon consistently clean and free from accumulated waste.

Who have proven that by an occasional Internal Bath, taking about fifteen minutes of their time, their blood is kept pure, their intellects bright, their minds clear, their bodies strong and vitally powerful, their nerves relaxed, and every part of their physical being in perfect tune, therefore, it naturally follows, in perfect health.

Perhaps you will be interested to know just what an Internal Bath really is—and while it cannot be described in detail here, it is no more like the commonly-known enema than a vacuum cleaner is like a whisk-broom—but it uses the same medium—Nature's own cleanser and purifier—warm water.

Some years ago Dr. Charles A. Tyrrell of New York City was in a most serious condition—at the point of death, according to physicians who were summoned to attend him, and by the principal of Internal Bathing referred to here, and nothing else, he effected a complete recovery.

Since that time Dr. Tyrrell has specialized on Internal Bathing alone, and has devoted his entire time, study and practice to this mode of treatment.

The result of his researches, study, and practical, as well as scientific, experience on the subject, is summed up in a little book called "The What, the Why; the Way of Internal Bathing," which can be obtained without a penny of cost by simply writing to Chas. A. Tyrrell, M.D., Room 893, 280 College Street, Toronto, with a mention of having read this in Fruit and Farm, Vancouver.

There are many practical facts about the working of the digestive organs which everyone should know, but very few do, and inasmuch as the margin between good and ill health is inconceivably narrow, and it is apparent that so very little trouble is necessary to keep well and strong in advanced years as well as in youth, it seems as though everyone should read this treatise, which is free for the asking.

B. C. FRUIT AND FARM

A NEW FEED.

The S.S. Wakena, of the Border Line Transportation Co., arrived in New Westminster at 7 p.m. on the 16th inst., with 200 tons of dried molasses beet pulp from San Pedro, California, for the Grain Growers' B. C. Agency, Ltd., New Westminster. This is the first introduction of this feed to the B. C. market, and the feeders of the Fraser Valley will appreciate the enterprise which prompted its introduction. Its guaranteed analysis stamped on the tags is: Protein, $7\frac{3}{4}$ per cent.; total carbohydrates, 76 per cent., and fat, $\frac{1}{2}$ per cent.

Of this feed, the United States Agricultural Bureau Bulletin No. 52 says:

"The Michigan Station found that dried beet pulp compared favorably with cornmeal for fattening sheep and steers. It produced larger gains with the growing animals, while the corn produced larger gains with the matured animals."

Bulletin No. 247 says: "That the Michigan Station found, as a result of three winter trials, that dried beet pulp tended to growth with cattle rather than fattening, and concluded that in the early part of the feeding period it could be fed advantageously in large quantities, because of its cheapness and ability to produce rapid gains. A 1000-lb. steer will not consume over 10 lbs. of dried beet pulp daily."

Bulletin No. 189 says: "The New Jersey Station fed two lots of two cows each alternately for two fifteen-day periods, first on 9 lbs. of dried beet pulp and 10 lbs. of mixed hay and second, on 45 lbs. of corn silage and 5 lbs. of mixed hay, and that when 9 lbs. of dried beet pulp and 5 lbs. of mixed hay replaced the 45 lbs. of corn silage, gave an average of 3.4 lbs. or 11 per cent. more milk."

The Wisconsin Feeding Station report No. 1905: "When feeding 3 lbs. of dried molasses beet pulp against 2 lbs. of wheat bran, found that 12 per cent. more milk was produced on the dried beet pulp than on the bran."

The Vermont Station report No. 1904 says: "That on substituting 2.7 lbs. of dried beet pulp on equal weight of bran, they secured a slightly greater flow of milk."

Bulletin No. 220: "At the Michigan Station four lots of eighteen lambs each were fed on dried molasses beet pulp, in trials which lasted 85 days, and concluded that for fattening growing lambs, dried beet pulp is equal to the same amount of corn."

This information will be of benefit to our readers who are raising young stock and poultry, as this is the time of

year when good growing feed is most needed, and dried molasses beet pulp is cheaper than wheat bran.

It would seem, from the information given in the Wisconsin, Vermont and New Jersey Feeding Station, that the dairy feeders would do well to try it also.—British Columbian.

COLONY FARM COW BREAKS ALL RECORDS.

Breaking all former Canadian records for milk production, and creating a new world's record for a term of 86 successive days, Zarilda Clothilde 111 De Kol, a pure-bred four-year-old Holstein, at the Colony Farm, Essondale, has produced 9,376 pounds of milk and 107 pounds of butter in the 86 days. She gave 3,415.3 pounds of milk and 98 pounds of butter in 30 days, and her record for seven days is 831.04 pounds, and 123.09 for one day in milk production.

This record has been made but a few days, and her record of production will be taken for the year.

The highest record cow in the Colony Farm herd is Madam Posch Pauline, who for the year just closed, or, to be exactly accurate, for a period of 350 days, has produced 27,888.3 pounds of milk, with the possibility looming up that for the full year of 365 days she will break all previous world's records, as her present mark closely approaches these figures.

A Victoria cow, "Ladysmith Daisy," owned by Dr. S. F. Tolmie, has also established a fair record for milk production for the year, her production being given as 25,596 pounds of milk, containing 721 pounds of butter fat.

TREATMENT OF SMUT.

Commissioner Clark, writing in the Agricultural War Book on "Treatment for Smut Prevention," says that in Eastern Canada there is considerable smut in the grain crops each year, but that it has not been sufficiently prevalent to make treatment for its prevention general. The losses, however, are much greater than is commonly realized, and the value of the crop could be considerably increased if treatment for smut prevention were more generally practiced. Over half the samples of fall wheat collected in Ontario contain smut, and it is also very common in the spring crops, especially oats. Reports on the samples treated indicate that formalin, one pound in forty gallons of water, is much more popular than bluestone as a preventive.

GETTING BUSINESS FOR B. C.

The B. C. Manufacturing Company have just closed a contract with an Australian firm for business which had hitherto gone to Puget Sound. The order is for 35,000 cases per month, to be used for packing oil in tins. This order, together with the usual business of the firm, will necessitate the putting on of a night shift in addition to the day shift.

Incidentally, it might be mentioned that the B. C. Manufacturing Company is the only plant in British Columbia making veneer fruit boxes, all of which formerly came across the line; and that this year it has secured a large proportion of the Fraser Valley orders for this product.

RECORDING COW QUALITY.

By C. F. W.

In many dairy sections in Canada it is quite possible, judging from official figures, to find a herd of cows producing milk at a feed cost of only 62 cents, or less, per hundred pounds, while on a farm two miles away milk costs perhaps 90 cents or more per hundred for feed. And on that farm where milk costs more, may often be found some dairy requisites, such as a pure-bred dairy sire, good ensilage, etc. Other requisites may be lacking, well rounded dairy judgment, cow quality.

Solid and lasting success is attained both easier and quicker by the intelligent use of dairy records, this is just common-sense selection of paying cows, instead of the indiscriminate boarding of "just cows." The individual cow of good promise is quickly and unerringly spotted by the use of simple dairy records, and fed for better production at less cost; while the antique souvenir, useless as a profit-maker, is beefed because she lacks ability to produce milk at a reasonable cost for feed.

The man who raises his own calves can take quick strides in building up a good herd, for he keeps only his best cows and knows just what he has got. The man who sells, often sells his best cows for a song (this is the plain history of some world-champion cows) just because he does not know what good cow quality he has; dairy records would have informed him.

A matter of ten minutes per cow per month spent in recording will put surprising, most illuminating results before any herd owner, indicative of great possibilities at present dormant in his dairy cows. Write to the Dairy Division, Ottawa, for samples of record forms, and start to lower your cost of milk production through selecting better cow quality.

CHINA'S FOREST PROBLEM.

China today is facing a forest problem similar to but much greater and more serious than that which France faced and met during the past century.

Unrestricted cutting in France had converted into waste 7,000,000 acres of former productive forest land. Nearly a million acres of what was steep mountain slopes (including the Vosges, famous in the present war), and the floods and erosion resulting from the removal of the forest cover there had greatly injured an additional area of 8,000,000 acres of farm land. Within the past sixty years France has reforested about 3,000,000 acres—or nearly half the waste land. The work cost around \$30,000,000; the land is now worth \$200,000,000.

In China the problem is much bigger and more serious on account of its vast area and population, and because the climate as a whole is less favorable for forest growth than is the more humid climate of France. The productive forest area—relatively small to start with—has been greatly reduced by imprudent use and by fire. River channels have been filled up by the fash from the hills, and fertile farm lands have been ruined by floods and soil erosion. Only by great expenditure of labor and money, extending over a long period of

time, can the waste lands be restored to productiveness.

Excellent gardeners and horticulturists as the Chinese are, they lacked knowledge of the first principles of forestry, and also lacked a stable government with an organization capable of applying forestry methods. Recently a government forest service has been started, and Chinese students are now studying at American forest schools.

Of greater interest to British Columbia, however, is the fact that China's forests at best—even if in the far future they may be restored—can never supply more than a small part of the great quantity of the lumber China will need in future. Its industrial development is only beginning. It will be one of the world's greatest markets. No country will be in a better position to supply lumber, pulp, and paper to this market than British Columbia.

BOOK REVIEWS.

We have received from the publishers, The Macmillan Co. of Canada, Ltd., two handsome volumes which would make a valuable addition to the library of either farmer or naturalist.

One is entitled "The Principles of Fruitgrowing," by L. H. Bailey, and is a complete compendium of horticulture, both from the scientific and from

the practical side. The illustrations, which are very numerous, are of a high order of excellence and include not only fruit of all kinds and fruit trees, but everything connected with them.

The second volume is "Plant Breeding," also by J. H. Bailey. It deals in an exhaustive yet readable way with the subjects of plant variation and plant selection for profitable ends, subjects that have been made so popular through the operations of the so-called Wizard, Luther Burbank. The general get-up of the book cannot be too highly praised, and the illustrations are really beautiful.

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CRATES

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 advice, the outcome of technical training and practical experience. Address letters to the Editor.—B.C. Fruit and Farm Magazine).

Like the seeding of the vegetable garden, the planting of summer flowers in the flower garden ought not to be all done the same day (some time about the end of May or later), but a start ought to be made now to get the best results from pansies, violas, pentstemons, antirrhinums and some others of the hardier summer flowers.

Pansies and violas are growing and starting to flower now and must be planted at once; too often they are left till too late and they are half grown, when transplanting gives them such a check that they never recover and are unsightly the whole year.

Pentstemons are slow growers and, unless planted early, they will just be coming to their best when early fall frosts may bring their flowering season to an untimely end. Pansies and violas like a cool, moist soil, rich in humus, and do best in a slightly shaded position; the seed pods ought to be picked from the plants as soon as the flowers fade, to prevent the maturation of seed and the consequent curtailment of the flowering season. Pentstemons require a deep, rich soil, and full exposure to the sun. Antirrhinums do wonderfully well in a poor, dry soil, but amply repay the little trouble taken to give them a more congenial environment.

It is quite safe now to sow the various hardy annuals; there is such a host of those that it is useless for me to enumerate them here—recourse had better be made to a good seedsman's catalogue.

Splendid results can be obtained from hardy annuals sown in rows or clumps in beds and borders, and some very good color schemes can be worked out if a little care and thought is given to their arrangement.

They are also very useful when employed in the herbaceous border to prevent blanks being made by the passing of such spring flowers as tulips, daffodils, crocus, etc. The seeds of some of

the above class of plants are very small and require careful sowing and light covering; when sown in beds and borders the soil ought to be well dug, and fertilized with well-rotted stable manure, and, if used in the herbaceous border, the soil ought to be loosened up well with a fork and the surface well pulverised with the rake before sowing.

Supposing you have a clump of daffodils in your herbaceous border which will leave a blank when over, dig round it with a fork and sow a few seeds of nemophila or some other desirable hardy annual; the young seedlings will be grateful for the little shade afforded by the daffodil leaves and will grow and flower when the bulbs are resting.

Vegetable Garden.

It is time now to sow carrots, beet, turnips, lettuce, kidney and pole beans, and don't omit the fortnightly sowing of green peas. Carrots should be sown in shallow drills and lightly covered with fine soil; the soil over all seeds ought to be firmly pressed down with the flat of the foot—this ensures a plentiful supply of moisture for germination. This detail is of the greatest importance should a protracted spell of drought succeed the sowing.

The early short horn carrots ought to have twelve inches between the rows, taller growing varieties fifteen to eighteen inches.

Beet requires a little deeper soil than carrots because of the larger seed, and the same distance apart as the larger growing carrots.

Turnips are an excellent vegetable, but hard to grow here on account of the maggot. As a precaution, it is a good plan to take out a drill six inches deep and the same in width, scatter 1 lb. of vaporite to every ten feet of row, return the soil again and sow the seeds on top. This method is usually successful; but the vaporite will give out

before the activities of the fly are at an end, hence it is wisest to only put in small sowings at intervals of two or three weeks. The main crop for winter use is best sown about the middle of June, when the one application of vaporite will usually carry the crop over the period of infection.

Lettuce can be sown in an odd corner, to be transplanted when in the rough leaf to good soil, the plants to be twelve inches apart each way.

Kidney beans require drills two inches deep and two feet apart. Sow thickly, as they have to be thinned out later to six inches. Pole beans are sown in hills three feet apart each way, and sometimes in rows after the manner of green peas.

TRANSPLANTING VS. THINNING VEGETABLES.

Better results are very often obtained by transplanting vegetables than by planting them in place and thinning out later. There are several advantages in favor of transplanting. The plants develop a better, more compact root system. They can be set at exactly the desired distance apart in the row; the soil in which the plants are to be set can be cultivated so that the plants when put out will have a start ahead of the weeds; earlier crops can be secured by starting the plants inside early in the season, and transplanting outside after danger of cold weather is past.

Sometimes the work of transplanting a crop is no more than that of thinning—take onions, for example—they can be transplanted with about the same trouble that it required for thinning, when planted in rows where they are to mature. Better onions can be secured by the transplanting method.

Plants, like lettuce, cabbage and parsley, do much better if transplanted at least once. Melon or cucumber

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plants, if grown in paper pots or boxes, can be started inside much earlier than in the open, and then transplanted after danger of frost is past. If grown by this method, so that the roots are not disturbed, they can be transplanted quite readily.

Hotbeds and coldframes are very desirable for growing plants for transplanting; the hotbed to start the plants in and the coldframe for hardening them off. However, much can be done without the use of these structures.

THE FARMER'S WIFE'S FLOWER GARDEN.

By Rusticus.

Poets without number have sung their songs of the spring. Indeed, we have what we call spring poets—flocks of them, who surely migrate like the birds, for we never hear their songs till drear winter is succeeded by the days of gentle showers and balmy breezes. However, the spring poet is only a near-poet after all, and not to be taken seriously.

But we all know what that great, all-the-year-around poet, the late Laureate, Alfred Tennyson, wrote about the spring in "Locksley Hall":

In the spring a deeper crimson comes upon the robin's breast;
 In the spring the wanton lapwing gets himself another crest;
 In the spring the purple iris circles on the burnished dove;
 In the spring a young man's fancy lightly turns to thoughts of love.

All of which is true; even that about the young man's fancy. But what has all this to do with a farmer's wife and a flower garden? you ask. It is only a prologue. We shall proceed to the theme.

First, let us borrow a thought from the quotation, and say: In the spring the fancy of a farmer's wife turns to thoughts of a flower garden. That is not poetic, but it is fact. Well! after Mrs. Blank's fancy has turned, she turns to her husband.

"George," she says, "I'm going to have a nice little flower garden this summer."

"All right, dear," says Mr. Blank, without raising his eyes from his newspaper.

"And," continues the wife, "I want you to help me plan it."

This is where the flower garden idea gets its first frost-bite, for Mr. Blank disclaims the slightest knowledge of flowers. Moreover, he says he has no time to bother with a garden.

Probably Mrs. Blank quietly pushes the fancy back into the spring brain-cell from whence it sprang. Later,

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In the Vancouver "Daily Province" issue of March 23rd, Mr. Cunningham, the Provincial Fruit Inspector, said that he could place 50 carloads of Grimes Golden apples if he had them that day. The "Grimes Golden" is a good keeper, with a full mellow flavor, and an enticing appearance, of which not enough are grown. He also stated that he opened a box of Winesaps from Wai-hachin, on the Thompson River, between Ashcroft and Kamloops, which were of splendid size and delicious flavor.

We are offering Grimes Golden, Winesaps, McIntosh Red, and other choice varieties of our one-year-old apple tree stock at \$10 per 100; two and three-year-old stock reduced accordingly. Our other fruit tree stock and general nursery stock we give 30 per cent. off catalogue price, allowed in additional stock. Cash to accompany order.

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Celery for the Home Garden

By GEO. BALDWIN, Toronto, Ont.

when her husband, throwing down his paper, announces that he is going to town in the morning and that if she will make a list of the seeds she wants he will get them for her, and that he will have one of the men spade up a bit of ground for her, she says she does not think she will bother with flowers this year. And the little flower garden dies before its birth.

Or, perhaps Mrs. Blank will nurse her fancy alone and determine to plan and plant a flower garden all by herself. In such case in due time seeds are sown, germinate and burst through the warm earth. Now the farmer's wife has a fine, healthy, infant flower garden. She spends as much time among the young plants as she can spare, and looks forward to a bower of beauty. But no one else is interested, and when extra household duties and hot weather come she loses interest, weeds choke the tender plants and the little flower garden is not, and never will be, a thing of beauty. What a difference a little help, a little interest, a little sympathy by Mr. Blank and other members of the family would have made! The garden would have thrived and there would have been infinite pleasure for the woman whose life has little enough in it that makes for gladness.

Of course, if Mrs. Blank, beside being a lover of flowers, is an enthusiastic floriculturist with the essential sympathetic "touch"—flowers, like people, develop best under sympathetic treatment—then she will have a nice little flower garden whether Mr. Blank is interested or not.

This little bit is not written for that Mrs. Blank. It is written to the Mr. Blank whose wife would love to have a nice little flower garden, but needs his help and sympathy for its success.

Three pence worth of oxalic acid dissolved in a pint and a half of hot water, and one ounce of oil of thyme, makes a good liquid for polishing brass.

Prepare your trench in the following manner: Mark off your ground six feet wide by the length required to take care of the quantity you intend planting. Dig this out to the depth of eight inches, throwing the earth equally on each side. Fill this eight inches up with good rotten manure and dig it in thoroughly and deeply. To insure its being thoroughly incorporated with the soil, tramp all over it and then dig it up again. Then level and rake it over, after which mark off, with a string, the three rows, which should be eighteen inches from each bank, and eighteen inches between the rows. The rows should run north and south. Next get your plants which should now be about eight inches long, that is, four inches of tops and four inches of roots; take the shears and clip off about one-half inch of foliage and one-half inch of roots, and then plant eight inches apart in the rows. Be sure, when planting, that you do not have the roots turning upwards. Dibble your holes big enough to allow the roots to go down in their natural position, and, above all, press the earth very firmly around the roots. Give a good supply of water and shade for a day or two with boards or paper.

You can get the plants from seedsmen, but do not leave it too late in ordering. You had better order early than wait until the twenty-fourth of May.

Grow Some Radishes.

Along each side of your trench, you have a hill running the whole length, probably a foot high. Level this off on top to about eight inches wide and sow radishes, which will mature long before you need the soil for earthing up purposes, in fact I get two crops of radishes off these hills.

Cultivation.

From this out (your rows being wide enough), run your hoe through one day, and water the next day. Take off the nozzle and hold the hose down close and give a liberal supply of water. Once a week give the rows a watering with liquid manure. By the end of July you will have some celery fit to pull. About the second week of July start the earthing up operations by drawing from the hills on either side

and putting about four inches of earth around the stalks. Do this by holding each individual plant firmly with your left hand and using your right to draw the earth, being very careful not to let any earth run in between the stalks.

Bleaching.

To thoroughly bleach the celery fit for table use, allow yourself ten days or two weeks, covering up within four inches of the tops of the foliage. Scatter a little sulphur or slaked lime over your bed twice during the season. Look occasionally for a green and yellow caterpillar. Don't squirt water on the foliage. Carry out the foregoing instructions and you will have celery fit to place before a king.

I recommend the earth instead of paper or boards for bleaching, because I have tried all these ways, and find the earth far preferable. It gives the celery a sweet, nutty taste, and the bleaching is more complete.

SUGAR BEET PULP.

The Grain Growers' B. C. Agency, Ltd., of New Westminster, are offering for sale Dried Molasses Sugar Beet Pulp. This dried pulp contains about nine times more feed value than the green pulp. It has proven a very satisfactory feed at several of the American Feeding Stations for milk cows, as well as for growing animals and poultry. On a basis of its feed value, it is much cheaper than mill feed or grain. Sugar Beet Pulp and Cornmeal, with a little Cottonseed Cake added, makes a fine mixture for dairy cows. The Connecticut Agricultural Station daily ration No. 4 for dairy cows is six pounds beet pulp, three pounds corn, three pounds cottonseed cake and twelve pounds hay. This has proven a very satisfactory milk ration. Daily ration for growing pigs: One pound corn, two pounds beet pulp, one pound rice polish, one pound cottonseed meal. A good dry mash to keep before your laying hens may be made from two parts cottonseed meal, two parts dried beet pulp, one part cornmeal, one part beef scrap, and one part of alfalfa meal. All the above ingredients may be had, either separately or mixed as above, from the Grain Growers' B. C. Agency, Ltd.



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POTATO GROWING COMPETITION.

The British Columbia Department of Agriculture is conducting, through the Farmers' Institutes, a competition among the boys and girls in the production of potatoes. The idea is to have boys and girls undertake to grow a crop of a certain minimum size, to keep accurate records of the expense and labor put upon the plot; to estimate the value of the crop at \$20.00 per ton when harvested and \$5.00 a ton for culled potatoes, then to give a statement of the total value of the crop, cost of production, net profit or loss; the net cost of producing a ton of potatoes and the net profit per acre.

Blank forms are being supplied to the boys and girls through the Farmers' Institutes, and from all appearances a most interesting contest will be conducted.

This is a most commendable form in which to carry agricultural education and interest in farming operations to the young people, and we hope that it will meet with the success it deserves.

THE HOME GARDEN.

The British board of Agriculture has advised the householders of Great Britain to utilize every foot of spare land in the planting of gardens for next year, to supply as far as possible their own garden produce. In this way they can assist in relieving any shortage which may develop on account of war conditions.

This suggestion is of equal importance to Canadians. Attached to nearly ever home are pieces of ground which at present are merely waste land. With little effort these may be converted into productive gardens. It requires very little space for a garden that, with ordinary care, will supply an average household with vegetables. By cultivating the available ground many Canadian families can reduce their living expenses, and, at the same time, secure vegetables which are absolutely fresh. Further, every extra pound of food produced in this way means an extra pound of surplus food to be sent to Europe. Village, towns and city residents can do their share in the greater production movement.

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NEWS FROM FARMERS' INSTITUTES

N.B.—All Subscriptions (or renewal subscriptions) to FRUIT AND FARM, which are forwarded through secretaries of Farmers' Institutes will be accepted at the reduced rate of 75c. per annum, instead of \$1.00.

MALAKWA FARMERS' INSTITUTE.

A very well attended meeting of the Malakwa Farmers' Institute was held on Saturday, February 27th, at the Malakwa Hall. The business to be considered was the holding of short course lectures. It was decided to make application to the Department of Agriculture to give these lectures in Malakwa, and the secretary, Mr. J. Mizen, was asked to write and see if he could get speakers to come and lecture on dairying, cattle, hogs, gardening and co-operation.

The ordering of chemical fertilizer was considered. The secretary gave prices, but was unable to state what terms could be got from the fertilizer company, but they will be to hand shortly. It will be a great saving in cost if an order for a carload can be sent in. The Institute has over seventy members, and most of them will require some of this commodity.

The subject of field crop competitions was discussed, and it was decided that such competitions should be held. Potatoes and mangels were chosen as the crop for competition, and if the members of the Institute do as well as last year they will be hard to beat.

A committee consisting of G. Finnicane, F. Wiper and J. W. Fowler was appointed to carry out children's competitions.

The alfalfa seed supplied by the Department of Agriculture was in great demand, and a good business was done, especially in oats and mangels.

MARYSVILLE FARMERS' INSTITUTE.

The first meeting of the Marysville Farmers' Institute was held on Monday afternoon, March 1st, and turned out to be most successful from the standpoint of attendance and interest displayed in the agricultural topics under discussion. About forty-five persons were present, including many ladies.

Mr. S. H. Hopkins, Assistant Live Stock Commissioner, was the first speaker. There are quite a number of new settlers in the district, and Mr. Hopkins pointed out that their first consideration would be to obtain a few head of live stock, such as a cow, some pigs, and chickens, to enable them to live cheaply. He took up the question of growing forage crops for live stock, and dwelt particularly on alfalfa grow-

ing and the great value of this crop for feeding all kinds of live stock. The Provincial Department of Agriculture is this spring distributing small lots of alfalfa seed, and about twenty Marysville farmers are taking advantage of this offer.

CHILLIWACK FARMERS' INSTITUTE.

The annual meeting of the Chilliwack Farmers' Institute was held recently, when the secretary-treasurer's report was received and directors elected for the ensuing year. The directors elected were: Jas. Bailey, J. R. Walker, A. B. McKenzie, J. A. Coatham, M. Hilton, R. Brett.

Messrs. J. C. Ready and W. Newton, of the Department of Agriculture, were present and gave interesting addresses. At a subsequent meeting of directors the following officers were elected: President, Jas. Bailey; vice-president, A. B. McKenzie; secretary-treasurer, J. W. Galloway. W. Dusterhoeft was elected auditor.

ROBSON FARMERS' INSTITUTE.

The annual meeting of the Robson Farmers' Institute on January 7 was largely attended. The secretary's report showed a membership of 82 for 1914, the largest in the history of the Institute, being an increase of 20 over the previous year. Thirteen supplementary meetings had been held, with an average attendance of 15.

Advantage had been taken during the year of Government aid in two field competitions, potatoes and field carrots, nine and seven entries respectively being made. The sum of \$120.50 was raised for the Patriotic Fund.

The Institute had shipped five cars of grain and feed, valued at \$5,443, and one car of hay and straw, during the past year.

The treasurer presented a statement of the Institute's finances for 1914 as follows:

Receipts—Cash on hand, \$17.29; members' fees, \$37; legislative grant, \$36; miscellaneous, \$76; total \$166.29.

Expenditures—Expense of meetings, \$4; officers' salaries and expenses, \$10.50; postage, stationery, printing and advertising, \$5; prizes in field competition, \$70; chairs for Institute meetings, \$12.95; grant for Patriotic Fund, \$25; miscellaneous, \$7.55; cash on hand, \$17.34; total, \$166.29.

Short courses in horticulture and livestock matters, also pruning and packing schools, would be continued throughout the current year, said a letter from W. E. Scott, Superintendent of Institutes.

The following officers were elected for the year: President, Dr. A. P. McDiarmid; vice-president, George S. Horn; secretary-treasurer, Gordon S. Brown; directors, A. D. Clyde, Joseph Johnson, Joseph Irwin, A. F. Mitchell, F. E. Osborne; honorary directors, P. Abrams, Renata; W. H. Wheelley, Syringa Creek; G. Biggeman, Deer Park; A. E. Pittaway, Castlegar; auditors, W. T. Wickham and H. P. Golder.

Supplementary meetings of the Institute will continue to be held on the first Thursday of each month at Robson. One will be held at Syringa Creek the date to be arranged later.

A special meeting of the Robson Farmers' Institute was held on Saturday evening, March 20th, to discuss the advisability of organizing a live stock association. The needs and advantages of such an association were discussed at length and the organization, consisting of a membership of about 15, was effected, to be known as the Robson Pure-bred Stock Breeders' Association. The following officers and directors were elected: President, A. Hartford; vice-president, A. D. Clyde; secretary, H. P. Golder; directors, George S. Horn, J. Irwin, F. E. Oborn and A. F. Mitchell.

SOUTH SLOCAN VALLEY FARMERS' INSTITUTE.

There was a good attendance at the annual meeting of the South Slocan Valley Farmers' Institute. C. S. Brockington presided, and Edgar Jamieson, the secretary, read the annual report and financial statement, the latter showing a balance in hand of about \$40. The following officers and directors were re-elected: President, C. S. Brockington; vice-president, E. A. McFadyen; secretary-treasurer, Edgar Jamieson; directors, Alex. Smith and A. J. Cowie. In addition to these two more directors, E. Groom and Frank Soucy, were elected. The auditors appointed are: H. L. Cowan and T. Ireland. The remainder of the evening was devoted to whist and dancing. Prizes were given for the former and were taken by Mrs. Joseph Brown and Reginald Haigh.

Mrs. Alex. Smith, C. Beard and A. J. Cowie furnished the music.

In connection with the land recently thrown open for pre-emption, many of the new settlers have arrived and taken up their residence thereon.

A charter has been granted for the Slocan-Kootenay Farmers' Exchange, and the certificate of incorporation has been received.

CENTRAL PARK FARMERS' INSTITUTE.

A meeting of the Central Park Farmers' Institute was held in the Agricultural Hall last week, when Mr. H. M. Eddie gave an interesting lecture on "Fruit, Flowers and Vegetables." Mrs. C. F. Sprott gave a lecture on "Bee Keeping."

LOOK AFTER YOUR HORSE.

(By a Farmer.)

Did you ever snoop into other people's stables and note the lack of care they give their horses? I have. It is not always necessary to look into another's stables; first look in your own. Do you give your faithful servant, the horse, a good bed? If not, why not?

I know a mail carrier who drives one horse on his route on Mondays, Wednesdays and Fridays; the other horse on the other days. A good policy no doubt. But if Friday should be a muddy day, the accumulation of dirt of Friday dries and remains on the horse's legs until the next turn to make the trip on Monday. Monday morning he is carried with a lick and a promise and goes another jaunt for his owner. You may do the same thing in a smaller degree! I used to. When a horse is carried in a hurry he is missed under the fetlock. Dry dirt at this point causes cracked heels and irritation, lameness and its accompanying ills.

Did you ever touch your tongue to an iron wedge that had lain out all night when the temperature was below freezing? If you did you lost some skin. I do not need to ask you to never do it again. That is what you ask a horse to do when you give him a frosty bit. Moisten the bit before bridling the horse; or better take it to the house and warm it before the stove.

When you start out for a drive on a cold day and your horse hasn't been hitched for a couple of days he feels mighty frisky. The weather being cold you just let him sail, thinking that he will come down in a few minutes. He will. Azoturia will probably come with him. See that he walks the greater part of the first half-mile. Don't let the horse hurt himself because he is willing, he knows no better and you ought to.

When your horse is working it is right that he should be well fed. When he is idle he should be well fed. But there is a difference. An idle horse may be well fed on half the feed that would keep a working horse well fed. Do not overfeed your idle horse nor starve your working horse. Feed a horse according to his needs. When you stop for a few minutes, no matter whether your horse is sweating or not, put a good blanket on him, fasten it at his breast and pin it on the hips to keep the wind from removing it. Better be safe than sorry.

SOME THINGS KEPT IN FARM RECORD.

A farm record for every farmer is becoming a necessity. If the farmer never forgot, he would not need it, but the man who must work hard on the farm does not have time to give his memory a training. So he must depend on his record book to refresh his mind regarding transactions on the farm. Here are some things this record should contain:

1. The dates of breeding of each animal.
2. The dates of planting the different crops.

3. The yield per acre of the crops, and the prices obtained from the merchant for crops when sold.

4. The weight of animals when put in the fattening pen, the weight at different periods of fattening, and the weight at marketing; also the amount of feed given and the profits made.

5. If hired help is employed, the date they begin labor should be jotted down, the price per month to be paid, and the different payments made to help, and when made.

6. The dates of the birth of all farm animals should be kept in the farm record that one may keep track of the ages of the horse, cows, sheep and hogs. Very easy to forget these things.

7. If money is loaned or borrowed, this fact should be noted in the farm record with dates, rate of interest, and time of payments of notes. Not much trouble to turn to it.

8. All store accounts and records of eggs and truck marketed should be kept in the book. One will then know what he is spending and not be in the dark.—W. D. Neale, Farm Life.



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WOMEN'S SECTION

British Columbia Women's Institutes

Motto—"FOR HOME AND COUNTRY"

CHILLIWACK WOMEN'S INSTITUTE.

An open meeting of the Chilliwack Women's Institute was held in the assembly room of the High School, which was crowded to the doors by an enthusiastic audience. His Honor Judge Howey was the speaker, and the chair was taken by H. J. Barber, Esq.

The first part of the programme consisted of miscellaneous items—music and recitations. The chairman's address was given by Mayor Barber; and the prize essay, "Why I Am Proud to Be a Canadian," was then read by the prize-winner, Stella Semple, a pupil of the High School. As a reward for writing the essay Miss Semple received a beautiful fountain pen, presented by Mrs. W. E. Bradwin, president of the Women's Institute, with a congratulatory speech.

The address, "The Story of the Fraser," given by His Honor Judge Howey, was of a most interesting and instructive character, and the speaker showed himself master of his subject.

A hearty vote of thanks to the speaker was proposed and carried unanimously; and the very successful meeting was brought to a close.

CENTRAL PARK WOMEN'S INSTITUTE.

The regular March meeting of the Central Park Women's Institute was well attended. Mrs. Bell, the president, was in the chair. Splendid reports from the various committees were read. Miss Summers was appointed convenor of the "Linen Committee" to collect and send linen to the military hospitals. It was decided that the relief committee distribute potatoes and seeds to be used in cultivating backyards and vacant lots.

A delegation from the South Vancouver Women's Voters' League was present, and asked the Women's Institute to assist them in getting women who had the municipal vote to use it for the highest good.

W. A. Dashwood-Jones, of New Westminster, spoke on the subject of gardening and flowers. He promised to give a silver cup for competition at the annual flower show in August.

Solos by Miss Elsie Reid, accompanied by Miss Margaret Reid, gave much pleasure to all. Tea was served and followed by a social half hour.

BURTON WOMEN'S INSTITUTE.

The annual meeting of the Women's Institute took place on January 13th. Mrs. R. Islip was elected president; Mrs. W. H. Robson, vice-president; Mrs. E. Hubert, secretary-treasurer; Mrs. Bethune, Miss Dann, Mrs. C. Marshall, Mrs. Stevens, directors. At the next meeting Mrs. T. Lane will demonstrate plain cake-making, and it was decided by the members that a masquerade ball and whist drive should be held in February.

HATZIC WOMEN'S INSTITUTE.

The regular meeting of the Hatzic Women's Institute was held on Thursday, February 18th, in the Hatzic Hall. Thirty members were present, and the president, Mrs. W. J. Manson, occupied the chair. The members decided to spend \$25 more for wool to be made into socks for our soldiers. After the general business was disposed of Miss Cruickshank, of Matsqui, gave a very interesting talk on flower culture. Tea was then served by the hostesses, Mesdames Alderson, Barr, Catchpole and Dann.

BARRIERE WOMEN'S INSTITUTE.

This new Institute is proving a success. The roll shows a membership of thirty. The meetings are well attended, considering that the community is a widely scattered one. A number of the members travel many miles to attend these meetings, and find them interesting and instructive. The first real work taken up by the Institute is in behalf of the Patriotic Fund. A social is to be held on April 14th, the proceeds to be used for the benefit of the Patriotic Fund. The meetings are held the second Wednesday in every month, and a most interesting programme is mapped out for the year. The meetings are held at the various homes of the members, thus evenly distributing the distances. In March the meeting was held at the home of Mrs. Wm. E. Betts, Big Bend Ranch, and a most interesting talk on "First Aid"

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was delivered by Mrs. Walter H. Smith. After the business of the meeting closed, refreshments were served and a social hour spent. The officers for the year are: President, Mrs. Jas. W. Ramsay; vice-president, Mrs. G. A. Borthwick; secretary-treasurer, Mrs. W. E. Betts; directors, Mrs. Samuel Armour, Mrs. T. A. Noble; auditor, Mrs. W. H. Smith.

LANGLEY FORT WOMEN'S INSTITUTE.

At the monthly meeting of the Langley Fort Women's Institute, held in the town hall on March 16th, arrangements were made for a whist drive and dance to be held in the town hall on Easter Monday, April 5th. Entrance fee, gentlemen 50c, ladies 25c, half of the proceeds to be used to purchase material for Red Cross work. It is hoped there will be a record attendance, as funds are urgently needed for this good cause.

Mrs. George had been fortunate in securing the services of Mrs. Ranson, vice-president of Ward 5 branch of the Vancouver Red Cross Society. As Mrs. Ranson had seen service at the front in two previous wars, she was able to make one realize more thoroughly the splendid work of this society, and the very great need for all the help that can be given at the present time.

Mrs. George read a report of the work which had already been done by the municipality, and it was decided to again start the sewing meetings, the first one to be held in the town hall on Tuesday, March 23rd, at 2 o'clock.

Tea was served by Mrs. Lambert, Miss Reid and Miss Bodaly.

SURREY WOMEN'S INSTITUTE.

The Surrey Women's Institute met in the Municipal Hall, Cloverdale, on Tuesday, March 2nd. Although the weather was dull there was a very good attendance, twenty-eight being present. The roll call, a special one, was answered by each member giving a recipe for using leftovers. It was decided that the Institute, along with other women's societies in Cloverdale, fix up and use the old schoolhouse for its meetings. Mrs. Molyneux read an excellent paper on "Gardening," which everyone present enjoyed. Mrs. Molyneux's paper was followed by an instructive address by Mr. R. Robinson, on rose culture, principally in regard to pruning. At the close of the address those ladies who were interested in the subject went with Mr. Robinson to Mrs. M. Smith's garden, where rose pruning was demonstrated on different rose trees.

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ROBSON WOMEN'S INSTITUTE.

The monthly meeting of the Robson Women's Institute was held on Saturday afternoon, March 20th. A paper on "How We May Beautify Our Homes and Community" was read by Mrs. C. S. Squire. Commencing with the next meeting of the Institute, which will be held at the home of Mrs. A. Lommel, on April 17th, the time of the meeting will be changed to 3 p.m. for the summer season. This meeting will be addressed by Mrs. George Makinson, president of the Arrow Park Women's Institute, on "What can the Women's Institutes do, collectively, to better the interests of the people of the Province?"

STRAWBERRY HILL WOMEN'S INSTITUTE.

The regular meeting of the Strawberry Hill Women's Institute was held in Newton Schoolhouse on Saturday, March 13th. The president, Mrs. Kirk, presided. There was a satisfactory attendance of members. In the regular order of business the school committee reported and a discussion followed re improvement of school grounds. Considerable good natured rivalry was exhibited in the "button-hole competition," in which Mrs. Reeves won first honors and Miss Olson second. After the completion of the day's programme, refreshments were served by the Newton ladies. All left with the feeling that the first Women's Institute meeting at Newton had been a complete success.

MATSQUI WOMEN'S INSTITUTE.

The March meeting of the Matsqui Women's Institute was held in their room at the Matsqui Hall on Wednesday, the 10th. Mrs. F. Solway, of Mission City, gave an interesting paper on home gardening and flowers.

HATZIC WOMEN'S INSTITUTE.

At the annual meeting of the Women's Institute, Hatzic, on January 7, the following officers were elected: President, Mrs. W. J. Manson; vice-president, Mrs. R. H. Richardson; 2nd vice-president, Mrs. T. Tripp; secretary, Mrs. E. Ferguson; treasurer, Mrs. J. A. Barr; directors, Mrs. M. Henry, Mrs. G. H. Moody, Mrs. E. M. Morrison, Mrs. W. H. Stratton. The membership was 49 at the close of the year, and the financial statement showed receipts \$146.05 and expenses \$86.07.

How the Women's Institute May Live Up To Its Motto, "For Home and Country"

PRIZE WINNING ESSAY

By **MRS. K. PORTSMOUTH**, *Member of Mission City Institute*

The motto of the Women's Institute, "For Home and Country," is a fine one, and well chosen. It conveys such a broad view of women's duties and responsibilities.

"For Home." This must not be understood in the narrow sense that the work of Women's Institutes should be confined to one's own home, wherever that may be, or even to one's own community, but it embraces a much wider field than this. It extends even to the Province itself, in which we have the privilege to live.

"For Country." This part of the motto also must not be taken to mean only one's own Province, but also the vast Empire of Canada, of which our Province is only a factor; and even beyond this, to the Mother-land itself, which in these sad days stands in such dire need of such help as can be given from these Institutes.

A Women's Institute is a very valuable asset to any community; for not only does it help and guide its members to manage their homes in a more capable and systematic way, thereby increasing the comforts of home life, but it also extends its beneficent influence to those who have not really become members, in a quiet, unostentatious way.

Of course, our "home life" is the first to be considered, because it is from this that the leaven spreads.

The "thousand and one" cares, responsibilities and duties that family life brings to the woman in the home must be met first, and her membership in the Women's Institute certainly helps to lessen her cares, lighten her responsibilities and guide her in her duties.

If she is a regular attendant at the Institute meetings she should glean all kinds of hints for labor-saving, little useful ideas of economy, concerning cooking, and helpful hints about needlework; in fact, the Government has very considerably placed at the disposal of the Institute specially qualified teachers for these and other subjects, and it is indeed a boon to be in a position to attend such classes for nothing but the membership fee.

No matter how ignorant a person may be in these matters, she need be so now no longer, if she takes advantage of these classes, when and where available; and even should she be fairly clever and capable, she may always

learn something new, something worth learning—not only from these appointed teachers, but from pleasant social intercourse with her fellow-members whom she meets at the Institute.

These are only a few advantages of which a member reaps the benefit. The duties of an Institute are many, too. Members should do everything in their power to relieve the monotony of the lives of such fellow-members as stand in need, and at the same time get in touch with those who are outside the Institute, and who may not have the opportunity of joining, but would do so if it were possible.

There are many women whose lot it is to live miles out in the bush, who not only see very little society, but have no chance whatever of hearing news of the outer world, or of reading any interesting literature. It is almost impossible to alter much of the monotony of such lives, but still a little can be done by collecting books, magazines and sending them wherever opportunity occurs.

Again, in some of these cases where the family lives so far away from communication with the outer world, it is often the case that they may be in actual want of food or of medical attendance. When this is found to be the case, the distress can often be alleviated by members of the Women's Institute. We must all bear in mind that our very membership means that we are all of one large family—women citizens; it is our duty as such to do all in our power to get in touch with any trouble outside our Institute and try to relieve it, to share one another's burdens, to give sympathy even if it is not in our power to give more tangible help.

"To

Do the work that's nearest,
Though it's dull at times,
Helping, when you meet them,
Lame dogs over stiles."

—Kingsley.

Nothing should be neglected that it is in our power to do for one another, for we take up a large responsibility when we promise to serve under the flag, "For Home and Country."

Of course, there is also a political side to the question—we are world-workers, and, as such, we may be able to do a little in helping forward the great onward movement towards "social reform."

USEFUL HINTS.

Alcohol and salt will remove obstinate egg-stains from spoons.

To remove the dirty rust that sometimes settles on the inside of vinegar cruet bottles, fill the bottles with sour milk and let them stand awhile before washing.

To clean white enamelled woodwork use a cloth dipped in benzine or petrol. Wipe with a soft dry cloth. This restores the original gloss so often spoiled by soap.

To remove peach stains, wet the stained part and spread with cream of tartar. Place in the sun. Wash in the ordinary way. Not a vestige of the stain will remain.

Keep a bottle of the following mixture in your wardrobe. It will remove grease from the finest fabrics without injuring them: Mix two ounces of ammonia, one teaspoon of saltpetre, and one ounce of shaving soap, cut finely, with one quart of rain water.

When a carpet sweeper becomes full of refuse, remove the waste collected, take out the brush and carefully pick off all the bits of rubbish. Rub the ends of the bristles thoroughly with a cloth, dampened with kerosene. A drop of machine oil occasionally poured into the holes where the brush revolves will help to keep the sweeper in good order.

For polishing all silver articles, a chamois bag filled with powdered magnesia is handy. A broken clothes pin, covered with cloth, is useful for working between the prongs of forks when cleaning and polishing them; the flat tip gets right into the crevices. An old piece of velvet is invaluable when there is any silver polishing to be done.

When eggs that have been preserved in waterglass solution are required for boiling, they should be pricked with a needle in the thickest end. This will allow the air to escape from the air cell at the thickest end of the egg, and prevent the shell from cracking when boiled. The eggs should be placed in cold water and allowed to boil for three minutes.

Turpentine is one of the magic home cleaners. If painters' white overalls are steeped in some for a day, all the paint marks will be removed. Linen can be made beautifully white if a tablespoon of turpentine is added to every gallon of the steeping water. It keeps moths away from boxes. Smear about mice holes and the places they frequent, it will have much to do with driving these pests away. It also makes a good floor polish, brightens oilcloth, removes finger marks, and when mixed with sweet oil, makes a good furniture polish.

We are not quite content to sit down and quietly look on, while our broader-minded sisters are striving for "equal suffrage," the abolition of child-labor, better wages for working girls, the suppression of the white slave traffic, and many other reforms equally good.

We do not want to be deemed a company of women who interest themselves in nothing beyond their own concerns.

At any rate, if we can do nothing, we can at least hold our tongues and not criticize in a spiteful way the actions of those of our sisters who are striving to better the conditions of life. We do not advise our members to become militant suffragettes, or anything extreme; but if we pretend to act up to the letter of our motto, it behoves us all to do what we can to make life better for our sisters in the years to come.

In these dark, troublesome times, it is only too evident what our duties are towards our country. We cannot all give our men, our sons—our nearest and dearest—to fight for us, neither can we all go to the front as nurses; but we can all deny ourselves by giving our time, our energy, our money to care for those left behind, to provide comforts, and even necessities, for those who are giving their lives for their country.

Our country, i.e., our Motherland, and our own Empire needs us to make great sacrifices for her, for she is fighting for her very existence.

We members of the Women's Institutes can make things much easier for the brave men who are giving their "all," by providing what they need in the way of comforts on the battle-field, by sympathizing and helping those near and dear to them, to whom many have said their last "Farewell," and also by doing our best to relieve all kinds of poverty and distress occasioned by the direct effect of the war upon employment and labor.

We should feel honored to be allowed to comfort the bereaved, to nurse the sick, to feed the poor, by raising funds for those purposes. At this terrible crisis we in Canada are providentially excluded from the sad and agonizing scenes that it is the lot of so many nations to witness, and, if for this reason alone, we "women of Canada" should make it more than ever our effort to fight for "Home and Country," and for

"The wrong that needs resistance,
The cause that craves assistance,
The future in the distance,
And the 'good' that we can do."



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Domestic Science Department

Edited by KATHLEEN FERGUSON

(Our readers will welcome back, we know, Kathleen Ferguson, whose household suggestions were such a valued feature, formerly, of this magazine. The writer is an expert in household science, and her articles each month are designed to assist the worried housewife in spreading a satisfying table, and maintaining an attractive home, while, at the same time, mastering the age-old problem of keeping expenditure within an always inadequate, and sometimes depleted revenue.—Ed.)

With much pleasure I greet old friends and welcome many new ones. As, thanks to the kindness of the Editor, I am once again resuming my work of helping busy "housekeepers."

Fruit and Farm has done great work and held its own through all the depression of the last two years, so that now a very bright future opens before the useful and interesting paper. And in these stern times through which we are living women have a big share of work to do, so that every little hint that can be of use is worth gold.

There is no household that has not been touched in some way or the other, no home is moving on the old lines, and many lessons taught us by necessity will prove of life-long value. Those who, financially, have not been affected from outside, are all trying to help those not so lucky, so that we all become one in the struggle. We are all told to produce anything in the way of food material possible, and even in a small city garden something can be done; and in every city vacant lots can be secured for the asking, and gladly given, as cultivation will improve the property.

What a lesson for growing boys in the city to give them a vacant lot, teach them how to cultivate it, and let them work after school hours! Just try it.

The girls can do much at home, and if you keep before their eyes that they are helping their country, you are forming our future citizens.

Make Marmalade.

Now just at present set the little girls to make marmalade. Let them make it, put it into pots, label it carefully, and sell what is not wanted at home. This year we may not feel the pinch so much, but next year all such foods are bound to rise, as many of our jam and marmalade makers are giving their energies to the saving of the Empire, and many gladly giving life itself.

So many say marmalade is so troublesome and so cheap! I can make it cheaper than any factory, even at the present price of sugar, and, in my opinion, nicer than the best. And also I know that only the purest materials are used, though, of course, even in factories of high repute, only the best may be used; but we can't always feel sure of the ingredients of bought stuff.

In the making of marmalade, I like best the "Seville" oranges. The taste is distinct, they form a stiffer jelly, and give more satisfaction, but many use the ordinary orange; in fact, a friend of mine made very good marmalade with navel oranges, not being able to procure Seville oranges.

From the recipe I give you can make lemon marmalade, grape-fruit marmalade, and also, for family use, a very good mixture can be made by using grape-fruit, oranges and lemons in equal quantities.

Orange Marmalade: Cut up 4 lb. of oranges and 2 lemons, slicing the oranges and lemons right through with a sharp knife, and removing the pips. Measure carefully 12 pints of cold water; pour this over the oranges and lemons, and let them stand all night. Put the pips in a separate bowl and pour an extra pint of water over them (they form a jelly by morning). Next day, boil the oranges and water, and also the water strained from the pips, for about one hour until the peel of the orange is quite soft (don't be in a hurry—some oranges take longer than others). When the peel is quite soft, add 13 lb. of granulated sugar to the oranges and water, and boil all until it jellies well. It takes about another hour. To see if the marmalade is cooked, put a little out on a saucer and allow it to get cold. If it jellies when cold, the marmalade is cooked. Have ready clean jars or sealers, very dry and warm; place the sealer in a bowl of hot water while you fill it—this prevents it cracking; cover the sealer as for jam, label the sealer when cold and put the date of making on it. In this way you can use the marmalade as it was made, so that none of it is kept too long, though, if properly sealed, marmalade keeps for years.

Now I think if housekeepers try this recipe, following all directions, they will like this marmalade as well as any in the stores. This quantity makes about 24 lb. of marmalade; and even with sugar at the price it is, and paying 35 cents per dozen for the best Seville oranges, I had my marmalade for 6½ cents per lb. without sealers.

Lemon Marmalade: Take 4 lbs. of lemons, 4 oz. of whole ginger (tying the ginger in a piece of cheesecloth if liked); I put it in plain and leave it in the marmalade, as it improves the flavor when kept, though many remove it, therefore put it in cheesecloth. Add to the lemons 13 pints of water, and follow the directions given for orange marmalade.

Lemon Marmalade jellies very quickly, but the lemon peel is often thicker than the orange peel; therefore it requires very good cooking before adding the sugar.

Keep this marmalade until the hot days of summer, and for breakfast on a very hot morning you will find it most delicious, as well as a very wholesome adjunct to your food.

Mixed Marmalade: Take 4 lbs. of fruit, mixing grape-fruit, lemons and either Seville or ordinary oranges; the weight varies, but about two grape-fruit, four lemons and four oranges make up the quantity. Slice all carefully, as directed; add the 12 pints of water and stand overnight, having kept the pips and put them in an extra pint of cold water. Boil all next day, as directed; add 13 lbs. of sugar and boil until the marmalade, put on a saucer to cool, forms a good jelly; turn into sealers and cover.

Always leave marmalade at least three days before using it. This gives it time to become thoroughly cold and to set well; otherwise, if used at once, housekeepers think that the marmalade has not jellied.

So much for the directions for the marmalade. Now for the difficulties that may arise. The one great difficulty with inexperienced housekeepers is that sometimes the marmalade won't jelly, and they boil and boil it. With this I don't agree. The fault is either with the oranges or with the sugar; and if, after two hours' boiling of the sugar and fruit, a jelly does not form, just take a little gelatine, about 2 oz. to the 4 lbs. of fruit, melt it and add it to the mixture before bottling it. If you like a very stiff marmalade, add 1 oz. of gelatine to every lb. of oranges, if after boiling, well, it won't jelly; but do not do as a friend of mine did, boil for 5 hours! You just spoil the marmalade. Sometimes you think a jelly is formed, and you seal and put away the marmalade, only to find, on opening it, it is not very stiff. Just heat it over again, add gelatine, and reseal.

These are exceptional cases, but I have known them to worry housekeepers.

THE GIRL ON THE FARM.

By C. S. Day.

Don't expect the girl to wash all the dishes. You wouldn't like it yourself.

Don't tie all her culinary efforts down to substantial. Let her try something new and fancy occasionally. Youth likes to experiment—and some mighty tasty "experiments" sometimes come out of the cook-book.

Let her have some of the egg or butter money; or time of her own to raise bees, or marketable flowers, or fruits or vegetables; or give her an allowance outright. She'd be getting pretty fair wages in some other farmer's household. All work and no pay isn't funny for the girl.

Welcome her friends; encourage her plans and merry-makings.

Let her have some say in the furnishing and decorating of the home. You may never suspect how she hates the rag-carpet on the sitting-room floor, until you consult her about having a real "boughten" rug in its place.

Don't take her mistakes too seriously. They show that she is doing things, anyway. The only one who never made a mistake is the one who never attempted anything. She probably will never make the same mistake twice.

Just imagine yourself a girl—with all of girlhood's hopes and plans and dreams and longings; all its high enthusiasms and energy, its love of fun and companionship, its beauty and sweet, shy sentiment.

Then—do by your girl as you would like to be done by in her place.—Farm Journal.

SWAT THE LIE.

Every time you see one nigh,
Swat the lie!

Truth must live and falsehood die,
Everywhere, low place and high,
Who's to kill it? You and I—
Swat the lie!

Prove your right to advertise;
Swat the lie!
Soon the public will get wise;
Right and left, swat the lies—
Beneficial exercise—
Swat the lie!

Paint those words across the sky;
"Swat the lie!"

Let it be our battle cry—
Liars, fakirs, make them fly.
Slam'em, bang'em, don't be shy.
Swat the lie!

—John H. Rennard.

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THE STOREROOM

Edited by "Deborah"

Spring has many voices, but we are apt to listen only to the one that appeals to us most.

Some hear the call of Nature in "The thrush's song, the blackbird's note, The wren within the hawthorn hedge, The robin's swelling, vibrant throat."

The birds' notes and the small, stirring noises made by growing things; the rustle of wind and the rush of water—these are the voices from out of doors that make themselves heard in the spring and appeal to us, though chiefly perhaps to the young, whose hearts leap in response and who are fain to set about nest-building, like the birds.

The Resurrection Hymn of Easter is a part of this Spring Song—the spiritual part. With the earth shaking off the shackles of a seeming death before our very eyes, it does not seem hard to believe what our religion teaches us by symbol and doctrine on Easter Day. It is not hard to believe that we shall live again after death, and that though the form will be different, the continuity of life will be complete.

These are the loudest and farthest reaching voices of the Spring; they speak to all men in all places. But there are other voices which are apt to attract most of our attention because they are close at hand, right in our ears, and insist on being heard.

What does a bright Spring day—the first, perhaps—suggest to the housewife? Why, spring-cleaning, of course, and nothing else. She is appalled at the dinginess of the walls, the grime of the curtains and the dusty corners that show up so plainly when the sunshine pours in at the windows, and the freshness outside puts the house to shame. Forthwith she resolves that the time has come for the annual turn-out, and lays her plans accordingly. First the house—then the garden—then the yard! And in between times she ponders on the subject of clothes for herself and the children—or notices signs of slackness in the family health and decides that a course of spring medicine will do them all good.

Her thoughts are eminently practical and the Spring voices she listens to don't carry farther than her own home. Yet I am confident that even this busy housewife, unconsciously maybe, is touched by that nobler melody of Faith and Love that nature sings in the springtime, whenever she looks at the blue sky or breathes deep the soft, clear air.

Then there is the voice of Fashion. Though we don't commend the women who think only of Spring clothes and Easter hats, we need not forget that we are only following nature's lead

when we adorn ourselves to suit the season. And we are all interested in these things. Even I, Deborah—a mother in Israel—must admit the "soft impeachment."

Is it the war that has chastened our spirits? If so, we may be thankful for it. The shop windows, I notice, are not showing a barbaric medley of primitive colors, rioting, clashing, cursing each other, as heretofore. But chastened shades of blue and grey—soft pink and dove color greet the eye. It is an immense relief to see these pretty tints again and to realize that Fashion is going to allow us to dress like civilized beings, instead of ordering us to bedizen ourselves in the fantastic garb of savages, or compelling us to assume the shapes of Egyptian dancers on an ancient frieze.

The new hats are distinctly pretty, moderate and becoming in outline—boat shapes, broad sailors and cap designs.

Also nothing could be more charming for the young than the frilled skirts that are shown. As for the old, they don't count any more when Dame Fashion—quite an old lady herself, by the way—lays her plans. At least the ampler skirts will permit us to walk once more, instead of obliging us to mince or else to trot—both of them undignified modes of progression when one has left one's teens far behind.

Deborah's memory played her a most disgraceful trick last month, or else her pen slipped. How many of my readers were pained at the inaccuracy that made the Lord ask of Aaron instead of Moses: "What is that in thine hand?" The rod alluded to was known afterwards, it is true, as Aaron's rod, because by means of it Aaron worked his divinations against Pharaoh, King of Egypt, but the words I quoted were spoken to Moses.

LINES WRITTEN ON THE FLY LEAF OF A COOKERY BOOK.

"With breads and meats and dainty sweets

The book o'erflows;
What'er you will of kitchen skill
It clearly shows.

And yet I would, if I but could,
A flavor add

To all the food, however good,
That's to be had.

We all must own that bread alone
Is but dry stuff,

And e'en with meat and dainty sweet
'Tis not enough.

So pray you take, whene'er you make
Your daily food,

Some happy thought, by friendship
brought,

Of higher good."

MOTHS.

The way to prevent the ravages of moths is to take time by the forelock and be ahead of the pests. If you put away winter things, furs and woollens, nothing more will be necessary than to tie up the articles to be protected in whole bags, such as pillow-cases—clean flour sacks are as good as anything. Then lay the sacks away in trunks or hang them up in closets, as may be convenient. If you do not wait too long, and so tie up the moth eggs along with your clothes, everything is safe, for no moth can penetrate a close cotton bag. By this method you avoid the smell of moth balls and other deterrents, which are so intensely unpleasant one can not wonder that the moth avoid them. I have preserved the family wardrobe for years in this way, with perfect success.

CORRESPONDENCE.

Springcleaner asks: "What washing powder do you recommend for cleaning windows?"

There are many ways of cleaning windows and helps thereto. From personal experience I recommend a good-sized chamois-leather, well wrung out of warm water. Nothing more is needed. The damp chamois will wash, dry and polish all together.

Mother Meg: "My baby, nine months old, jumps around so in his carriage, I am in constant terror of his falling out. He wriggles from under the ordinary strap. What am I to do?"

Make a belt two inches wide, of canvas or any fairly heavy material, to button round your baby's body, not too tight, but reasonably snug. Sew to the back of the belt, a few inches apart, two brass curtain rings. Through these rings you can slip a strap or strong cord which should be fastened securely to either side of the baby carriage. In this way your lively boy will have freedom to move from side to side, but can't possibly fall out.

H. H. S. enquires: "What is the right number of stitches to cast for soldiers' socks?"

This depends on the size of the yarn, the size of needles used and whether the worker knits tight or loose. A tight knitter should counteract this tendency by using larger needles. With a heavy wool and coarse needles some knitters put on as few as 54 stitches. 18 to a needle. With finer wool and No. 14 needles, 72 stitches are usually cast on for a full-sized sock.

This Woman's Page Tells What City People are Wearing

The Spencer Store has a very great influence on what is worn in the West, for, as everyone knows, we are the largest purveyors in the Province, and we have our representatives in all the Fashion centres and markets.

These few notes are presented so that you may share in this great store's many advantages. We are ready to show you this merchandise if you should have occasion to visit Vancouver, or we will be glad to ship any item to your order on our broadest of broad guarantees: **Return unsatisfactory goods for full cash refund, plus any shipping charges you may have incurred in the transaction.**

WOMEN'S SUITS ARE PARAMOUNT

The outstanding feature of this suit season as regards the Spencer stock is the standard of excellence we have achieved in suits selling for \$35.00 and less. Their good materials, correct styles and unusual variety commend them to your notice. The following is representative of late arrivals. Women will note with satisfaction the reasonable prices:

Grey Worsted Basque Suit with yoked skirt; extra-ordinary value at	\$22.50
Gabardine Suit, novelty Norfolk	\$25.00
Blue Tweed Norfolk Suit, with active service jacket. Price	\$35.00
Bronze Green Worsted Suit with basque effect.....	\$25.00
Grey Donegal Tweed Norfolk, with grey suede belt and collar	\$35.00

Suits in black and white shepherd checks, \$22.50 and \$25.00	
Black and white striped suit, trimmed with green. Price	\$35.00
We have Navy Norfolks that are dressy and excellent value; tailor made in navy serge	\$25.00
Plain tailored Blue Serge Suits in the latest style, made by our own tailors, at \$15.00, \$17.50, \$22.50 and	\$25.00

New Knitwear

COMBINATIONS, fine white cotton, ribbed, finished with lace; sleeveless and short sleeves; sizes 36 to O. S., for	50c
DAINTY COMBINATIONS with a hand crochet yoke and wide lace trimmed knee; all sizes	65c
POROUS KNIT COMBINATIONS, with tight knee; also loose knee; lace trimmed, sleeveless and short sleeves	65c
NEW HARVEY KNIT COMBINATIONS, "Airywear." This is a fine fabric, but gives excellent wear; loose and tight knees, sleeveless and short sleeves. Splendid fitting garments	75c
ENVELOPE COMBINATIONS, in lisle thread; sleeveless and with short sleeves	\$1.50
VESTS AND DRAWERS AT 25c—Great variety of styles, plain and lace trimmed, sleeveless and short sleeves.	

Interesting New Whitewear

Fine muslin combinations in envelope style, at 75c; also in white crepe trimmed with lace, and fine white muslin trimmed with embroidery, at	\$1.00
Envelope style Drawers in fine muslin, also in crepe, at 60c	
White Crepe Drawers, open and closed style, 40c and 60c	
New White Crepe Nightgowns in slipover style; very dainty; at	\$1.00
Extra O. S. size Nightgowns in white crepe, daintily finished; at	\$1.50
White Crepe Corset Covers, in all sizes, at.....	25c and 35c

Women's House Dresses \$1.75

These dresses are not built with the idea that anything is good enough for house wear. The pretty finishing touches and good style of these dresses mark them as suited for outdoor and holiday occasions. They come in pretty checks, plaids, stripes and plain colors in greys, blues, pink, mauve and black and white, in easily washed prints, gingham and percales. All sizes to 44.

Smart New Skirts at \$7.50

They are featured by smart styles and excellent quality materials. Full gored skirts in navy serge, with attractive silk military braid trimmings in circular form, and also up and down the hips. Full tunic effect skirts, with accordion pleated foot, in navy serge; also with two tiers of knife pleating at the foot; still another, tunic skirt with knife pleating appearing at knee height from underneath a fold of black moire. Several button trimmed styles in tunic skirts. We show all these styles, in both black and navy, at

The Best Wash Fabrics for Summer Wear

Ivory White Voiles, 27 inches wide; yard	35c
Ivory White Voiles, 40 inches wide; yard	45c
Ivory White Voiles, 43 inches wide; yard	60c and 75c
Marquissette, 43 inches wide; yard	50c
Marquissette, 39 inches wide; yard	60c
Marquissette, 40 inches wide; yard	75c
Haircord Voiles, 40 inches wide; yard	65c
Also in effects of black and white and navy and white, 44 inches wide; yard	75c
Barred Voile, 39 inches wide; yard	50c
Crepon, 42 inches wide; yard	75c
Also in a large range of colors.	
Stripe Crepon, 42 inches wide; yard	90c
Stripe Crepon, Mesh Weave, 42 inches wide; yard.....	\$1.15
Mercerized Crepe, 27 inches wide; yard	40c
Figured Crepon, 44 inches wide; yard	65c
Serpentine Crepe, 27 inches wide; yard	20c
Serpentine Crepe, 41 inches wide; yard	35c
White Tucked Lawn, 22 inches wide; yd., 50c, 65c and 75c	
White Dotted Swiss Muslin in a large variety. Prices from, yard	15c to 60c

DAVID SPENCER, LTD.

Children's Corner

ANSWER TO LAST MONTH'S ANAGRAM.

When Kitchener the **silent** bids you rally to the drum,
 Don't stand and **listen** merely—up and go;
Enlist! Leave golf and football to the slacker and the scum,
 And scorn the **tinsel** of the picture show.
 Then when thou with thy comrades **linest** trenches at the front,
 Or guardest **inlets** of each bay or bight,
 Stand staunchly to the colors and bear the battle's brunt—
 Show Germany that Britons still can fight.

ROMULUS AND REMUS.

"What is that funny noise?"

It was Peggy who spoke. She and her playmate, Emily, were driving home from school. They were the same age—eight years—and every day they drove Lucy, the little roan mare, in a nice little cart which had room for two. The road was long and hot—for this was an Australian summer—and everything seemed to be sizzling in the blazing sun. They had passed a large flock of sheep some time before, and Lucy had been very indignant because the slow creatures took up so much of the road. Every now and then, when the press was thickest, she stood quite still in the middle of the road, turned her head slowly round so that she could see the children, and, after giving them a long, reproachful glance, started on again with an air of annoyance. Now the road was clear once more and Lucy was trotting along with her ears pricked up. The noise that Peggy had noticed seemed to be coming from the side of the road several yards away. Lucy was told to stop while both children sat and listened.

"There it is again!" Peggy exclaimed.

"I can hear it too. Let's see what it is," said Emily.

Without even tying Lucy up, they left her standing while they scrambled in the direction of the noise. Again they heard the strange sounds. First there were faint little bleating cries, and then a chorus of loud squawks.

Suddenly the children stopped in dismay. In front of them, a few yards off, was an open space; in the middle were two tiny lambs, so weak that they could hardly stand up. All around, in a black circle, were dozens of great, cruel looking crows. They had grad-

ually closed in around the little helpless lambs; and had already pecked off the poor little things' tails. Next they would peck out their eyes and then tear them all to pieces; but on seeing Peggy and Emily they flew away with loud squawks of disgust.

The lambs had only been born a little while and were so weak that they could not keep up with the flock. The mother had to leave them behind, because she was driven by the big sheep dog.

Each of the children took one of the lambs in her arms and carried it to the road, where Lucy was patiently waiting. They each sacrificed a nice clean pocket handkerchief to tie up the little bleeding stubs of tails, and then, tucking themselves and the lambs comfortably into the cart, they started Lucy off again and hurried home.

The lambs survived their terrible experience, and seemed none the worse for it, except that their tails never grew again. Peggy hunted up and filled two old feeding bottles that had belonged to her baby sister, and the hungry little creatures drank the warm milk greedily.

They were named Romulus and Remus because they were twins; and before long they grew sleek and fat, and as pretty as could be. Before they got to be big sheep the children had many a long day of play with them, and declared that they had never had such lovely pets before.

AGRICULTURAL BULLETINS.

So great has been the demand for bulletins, pamphlets, records and reports upon the Publications Branch of the Department of Agriculture at Ottawa as a result of the Patriotism and Production Movement, that it has been found impossible to comply with all the applications as promptly as could be desired. Of some of the bulletins the supply has been exhausted and no time has been afforded for reprinting, while of others the quantity asked for individually has been such that instant compliance would mean many applicants might have to go without. This has meant extra correspondence and consequent delay. The situation is, of course, satisfactory as indicating the success of the campaign, and the widespread interest created, but the inability to respond on the instant with the multitude of applications is greatly regretted. At the same time it is impossible that the size of the demand could have been foreseen. As fast as possible the requests will be attended to, but in the meantime there will have to be reprinting and in cases revising. In such circumstances patience appears to be a desirable and necessary quality.

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