

BRITISH COLUMBIA



Vol. X., No. 12

DECEMBER, 1917



PURITY FLOUR

"More Bread and Better Bread"

We Extend
To All A Hearty
Christmas
Greeting

WESTERN CANADA
FLOUR MILLS CO., LTD.

Millers to the People.

Winnipeg. Brandon. Calgary. Goderich

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BRACKMAN-KERR MILLING CO.
Vancouver Victoria New Westminster



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HEADQUARTERS FOR CHOICE NURSERY STOCK IN B. C.

December still offers good results in the Coast Districts for Fall planting, and mind, if the land is in proper condition—as it should be—rootgrowth goes on right through the winter, even while the tops of the trees are dormant, and that is the reason you should plant early in the season, particularly on high and light land.

For the Coast we offer the following as the most profitable to the commercial planter, ripened in order as mentioned:

APPLES—Yellow Transparent, Duchess, Wealthy, Gravenstein, King, Grimes' Golden, Winter Banana, Wagner, and Hyslop Crab.

—For the Interior of B. C. leave off the King, but add McIntosh, Jonathan, Yellow Newtown and Delicious.

Of **PEARS** the most profitable are Bartlett, Dr. Jules Guyot, Boussock, Clairgeau Bosc, Anjou and Flemish Beauty, the latter only for the Interior, where it is the best Fall pear, while on the coast it is useless; being much subject to scab.

Of **CHERRIES**, the best are Bing, Lambert, Royal Anne, Black Tartarian, Olivet and English Morello. If you have a light uniformly deep soil, which retains moisture all through the heat of the Summer, and is naturally drained enough so as not to give the trees "wet feet" through the rainy part of the season, these are conditions cherries require and under which particularly the "sweets" become a well paying investment.

For **PLUMS** we recommend Peach Plum, Burbank, Climax, Black Diamond, Yellow Egg, Pond's Seedling, and Italian Prune.

Of **PEACHES** the best are Early Crawford, Alexander, Triumph, Hale's Early and Elberta.

Of **APRICOTS** the Royal Moorpark, Tilton and Blenheim are the best.

WALNUTS are coming more and more into prominence, and where conditions are suitable, no doubt are most profitable. The benches along the lower Fraser are ideal for walnut growing, and the Franquette and Mayette are by far the best varieties.

For the Family Orchard we have, of course, a much wider range of varieties, so as to suit the fancy of the different ideas and to give a wider usefulness in regard to ripening and quality for the table.

Of **SMALL FRUITS** the Strawberries lead and Magoon and Paxton are the commercial shipping berries. The ever-bearing varieties are of great promise. We recommend the Progressive and Superb as the most valuable.

LOGANS are bound to play a most important part in the fruit industry of B. C. The demand for Logan Juice and Vine being unlimited, there is not much inducement to plant the Logan in large quantities, and this applies to the Coast of B. C. in particular, being the only district in Canada where the Logan Berry succeeds.

RASPBERRIES and **BLACKBERRIES**, too, with the temperance movement will be much more in demand in the manufacture of healthy and refreshing Summer drinks.

CURRENTS and **GOOSEBERRIES** come in the same class, and besides the leading varieties of the standard kinds we offer some very fine Baskoo, Giant and Perfection Currants; also some of the large-fruited English Gooseberries, in well-grown stock, and will make special prices on large lots of all varieties.

GRAPES we offer in extra well-rooted stock, strong, 1 and 2-year plants in leading hardy varieties, both of American and European class.

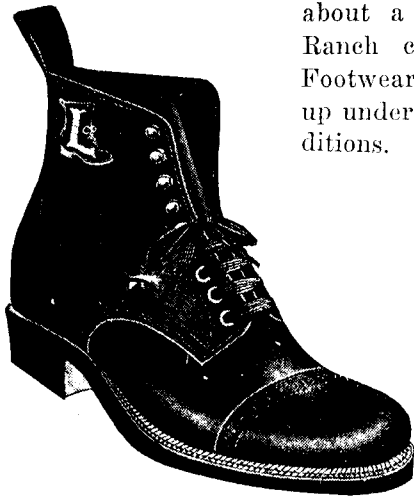
ORNAMENTALS: Shade and Flowering Trees, Fancy Conifers, Hollies with Berries, Rhododendrons, Roses, Clematis, etc.—Of course, we have them in strictly first-class stock and in all sizes up to large specimen trees for immediate effect and in greatest variety to suit the most exacting planter.

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JUNCTION OF WILKINSON AND CAREY ROADS.

Victoria, B. C.



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LECKIE BOOTS

are the logical footwear to meet those conditions.

Made in British Columbia by a firm which understands thoroughly just what is needed in the way of Boot Service, and LECKIE BOOTS meet every need.

Your dealer knows. — Ask him.

Name on every pair — but remember: The Quality goes **IN** before the Name goes **ON** — THAT'S A "LECKIE."

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ELECTRIC LIGHT

means more pleasure, more reading, more success.

ELECTRIC COOKING

means more convenience, whether you use a table appliance or an electric range.

ELECTRIC POWER ON THE FARM

means more production, more spare time, better results, bigger profits.

Consult our agents about getting electric service for your home.

B.C. Electric

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When Christmas Shopping

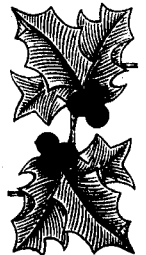
There You Will Find a Splendid Assortment of Attractive Articles, such as—

Parisian Ivory, Perfumes, Brushes, Thermos Bottles, Christmas Stationery; Dressing Cases for Ladies and Gentlemen, Razors of All Kinds, Spirit Stoves, Candy, Etc.



You will always find someone to serve you at an OWL STORE, and one store, at least, is close at hand wherever you may be in the city.

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Main and Hastings
Hastings and Abbott
Granville and Dunsmuir
Granville and Robson
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To Our Readers and Patrons

WE speak the simple
phrase naught may
destroy, so long as
human hearts feel human
joy; and Age and Youth alike
still hold it dear. Tho oft in
sorrow and perhaps a tear,
the theme is just the same.



A Joyous Christmas
and
A Glad New Year

Christmas, 1917

Fruit and Farm Magazine

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

Vol. X.—No. 12

Vancouver, British Columbia

\$1.00 per year
in Advance

The Pure Bred Dairy Herds of British Columbia

By J. A. McLean, Professor of Animal Husbandry, University of British Columbia.

ARTICLE II.

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EDENBANK FARM

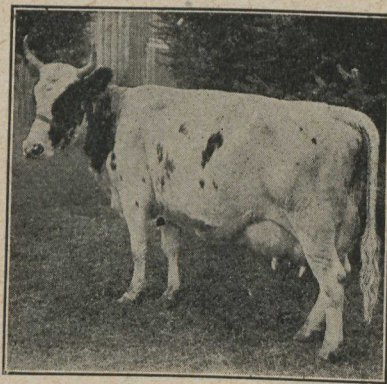
Owned by Edwin A. Wells, Sardis, B. C.

Edenbank Farm is fittingly named. It is centrally located in the Chilliwack area of the Upper Fraser Valley and consists of two hundred and five acres of excellent, level, arable land. A beautiful brook runs through the farm, affording on its bank a beautiful location for the barns and home. As one approaches the farm the attractiveness of the setting, with its fine home, large barns and many highly bred cattle grazing beside the brook and beneath the trees, gives a picture which contains many charms that no artist's brush has yet reproduced.

The farm was pre-empted over fifty years ago by A. C. Wells. To Mr. Wells, Senior, belongs much credit for Edenbank Farm and the development of dairying in the Chilliwack Valley and in British Columbia. He established Edenbank Creamery, the first of its kind in the province, he was for years president of the Provincial Dairymen's Association; he has always promoted all things to advance dairying and his name will long be remembered in the province. About twenty years ago the foundations of the present herd of cattle was established. Previously for twenty years the place was operated as a dairy farm by A. C. Wells and Son, so that there is approximately forty years of dairy cattle history on Edenbank Farm.

The first purebred group acquired consisted of four females and one bull, purchased from Joseph Yuill and Son, Carleton Place, Ontario. The first bull was Duke of Neidpath-2030. After him came the following bulls: Kelso 2nd-12256, bred by Mr. D. Drummond; Mangus of Dentonia-15233, bred by the Massey Estate; King Edward of Springhill-20195, bred by Mr. W. F. Stephen; Stadacona of Avon-23716, bred by Gus Langelies. The dam of this last bull was

Almeda of Danville, that in the first year of R. O. P. work in Canada had the distinction of leading the breed. Other later sires used were: Rob Roy-14584, bred by William Stewart and Son; Imported Lesnesock King of Beauty-16768, bred by T. W. and R. Lindsay; Edenbank Royal Hero, bred by Collier Bros., and Willowmoor Rising Star-28004, bred by J. W. Clise, Redmond, Washington. Another Clise-bred bull is the senior sire now



Spring Hill Beauty.

in the herd, viz: Willowmoor Robinhood-48026. His grandam is Garenton Dora 2nd, with a record of 21023 pounds milk, 803 pounds fat, and his sire's grandam is Netherhall Brownie 9th with an official test of 18110 pounds milk, 820 pounds fat. The junior sire in the herd is Edenbank Peter Pan-54405, bred by W. J. Clise. His dam is Lily of Barclay, the mother of Lily of Willowmoor that has 22596 pounds milk and 955.5 pounds fat to her credit. His sire is Beuchan Peter Pan, a show bull par excellence and a bull that is fast being established as a sire of high production.

The herd now numbers about sixty cows two years old or over, amongst which are many good workers of splendid type. In the management of the herd R. O. P. work has not been pushed to the fullest extent,

and all records made have been done on twice-a-day milking and feeding, accompanied by no extra care in stalling or management beyond that of the regular herd.

Conspicuous amongst the cows stands Springhill White Beauty that has a three year old record of 12502 pounds milk and 560 pounds fat. She is a cow of the most approved type that in depth, style, constitution, vigor, capacity and dairy temperament is most pleasing. Evergreen Maid 2nd has an R. O. P. record of 13013 pounds milk and 485 pounds fat. Both these cows have left excellent strings of daughters in the herd. Other cows that have also left especially attractive offsprings have been Nellie Burns, Silver Maid and Burnside Lady Nora; from each of which families have grown within the herd.

In the selection of sires to herd this large and valuable herd Mr. Wells lays emphasis upon certain features which should be of value in the guidance of all breeders. If at all possible he selects a sire that has already proven himself by getting high producing offspring. In any event a bull to head this herd must be from ancestry which possess superlative milk and butter records. In addition to this, if any physical faults are asserting themselves in the herd, particular care is taken to select a sire that is most likely to correct these faults. "Proven production and individuality" might be well chosen for the motto of this herd.

Mr. Wells is a firm believer in the proper application of the tuberculin test, and has regularly had his herd tested every year since the provincial government inaugurated that work. He is proud of a large, clean herd and values the freedom from tuberculosis.

It is of interest to observe that Mr. Wells regards Beuchan Peter Pan, Willowmoor Robinhood, Kate's Good Gift and Howie's Dairy King as the four leading sires of the breed.

Pure Bred Dairy Herds of British Columbia

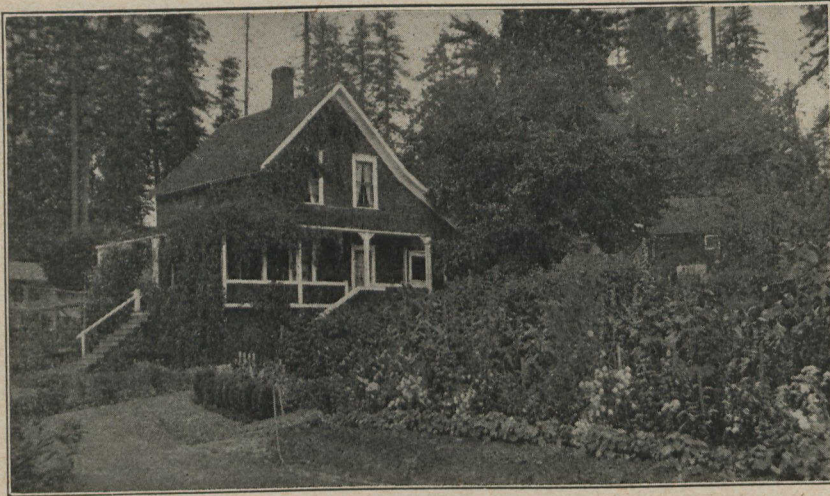
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LAKEVIEW FARM

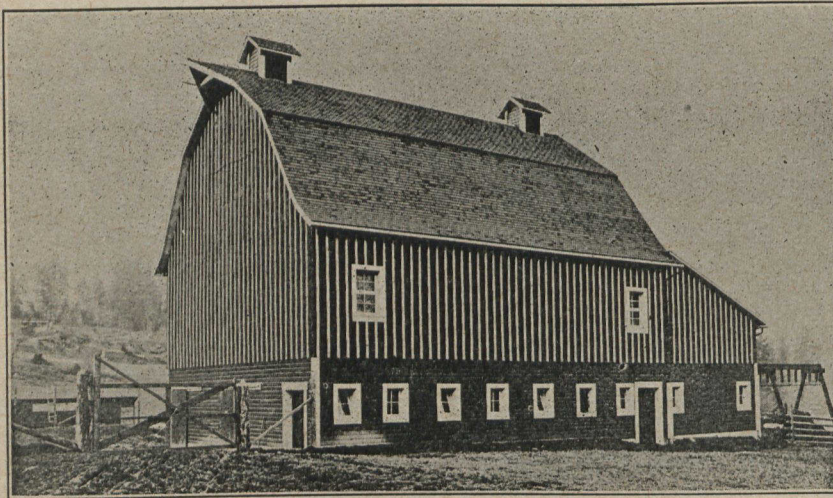
Owned by L. F. Solly, Westholme, V. I., B. C.

Lakeview Farm consists of one hundred acres, of which only about thirty are yet in cultivation. The farm is rolling, with a red

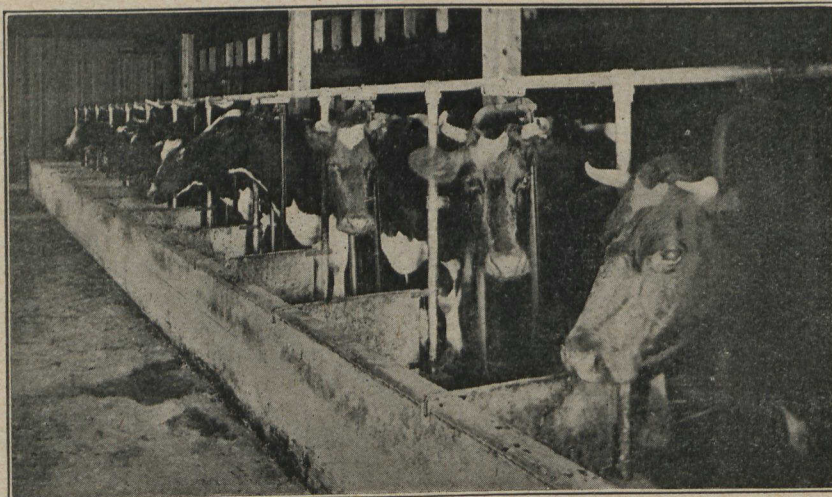
loam soil in the hills, and yet with some very good level, rich cropping land. It is primarily a poultry farm and Mr. Solly is one of the rather infrequent poultrymen who has made birds his main issue and who has had a good degree of success. But hens



Mr. L. F. Solly's Residence and Garden.



Mr. L. F. Solly's Barn.



Interior View of Mr. L. F. Solly's Barn.

are not the only stock on the farm; and it is hoped that the pure bred dairy herd being steadily built up will achieve as successfully as have the fowl.

Just as his poultry houses are sensible, practical, sanitary and well constructed, so are his dairy barns.

"If one is going to keep dairy cows he should keep good ones," has been the motto directing the cattle operations of this farm. In keeping with this ideal in 1912 three mature, purebred, in calf Holstein cows were purchased. In 1916 three purebred Jerseys were added to the herd. From these foundations there are now nine females over two years of age on the farm. From these have been obtained some very creditable records, indicative of the excellence of the animals. L. F. Snowball Althea, a Holstein as a two year old, won the silver medal for second highest production in her class in British Columbia in 1916, with an R. O. P. performance of 12120 pounds milk, 408 pounds fat. In the same year, Plashes Model Jessie, a Jersey, achieved an R. O. P. record of 9015 pounds milk, 438 pounds fat, which is amongst the best Canadian two year old performances.

The Holstein sire at the head of the herd is Colony Rooker Korndyke, bred at Colony Farm.

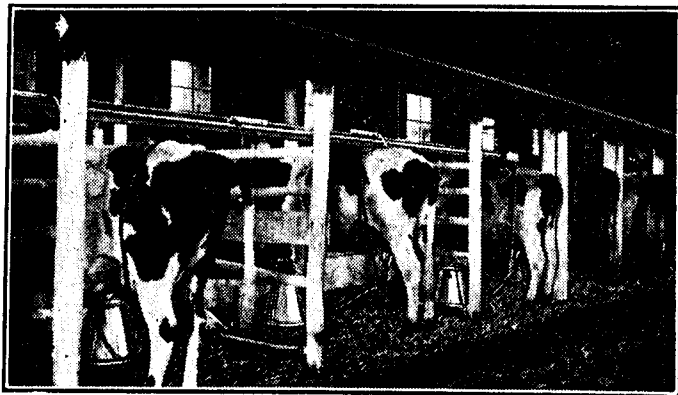
The Jersey sire in use is Lassie's Hero, a son of Buff's Lassie.

Continued on page 8



Prize Corn Grown by Mr. L. F. Solly.

"I Either Had to Sell Some Cows or Get a Machine"



W. A. Barr's Stable, Olds, Alberta, Showing HINMAN MILKERS at Work.

Olds, Alta., Sept. 27, 1917.

Dear Sirs,—

I installed a Hinman Milking Machine about two years ago, and I will say I have been entirely satisfied with the results. I was right up against the help problem—I either had to sell some cows or get a machine.

I believe now it is one of the greatest labor saving devices yet invented for the farmer, and I believe the man that will milk the cow as good as this machine is hard to get. I can milk with 3 units 20 cows an hour.

Yours truly,

W. A. BARR.

Will Your Dairy Be Making A Profit This Winter?



AYRSHIRE BULL
"NEIDPATH KING," No. 48503
Owned by E. A. Turner, R. R. No. 2,
St. Pauls, Ont. A satisfied user of
HINMAN MILKERS for the past three
years.

Labor costs going up—help almost impossible to hire; feed going "sky high"—profits going down. The Dairyman must save on something; You can't save on feed, so You must SAVE ON HAND LABOR. Install the

Hinman Milker

Enabling ONE Man to Do THREE Men's Work.

CAPT. J. T. MUTRIE WRITES IN PART:

VERNON, B. C., Oct. 26, 1917.

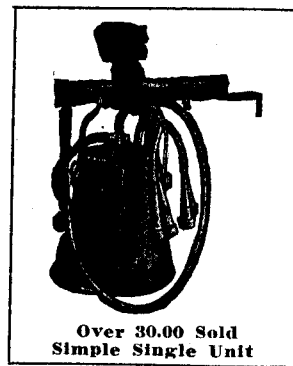
H. F. BAILEY & SON, Dear Sirs,—

"The outfit is working very well, indeed and I am well satisfied with it."

MR. J. A. EVANS STATES IN PART:

CHILLIWACK, B. C., May 10, 1917.

"Would not try to do without it even if it cost twice the price."



Over 30.00 Sold
Simple Single Unit

Write for Milker Book "L" and know this necessary dairy machine.

H. F. Bailey & Son, Galt, Ont.

CHILDERHOSE & MURPHY, CHILLIWACK, B. C., Reps.

Lakewood Farm—Continued

In the selection of females, emphasis is laid upon constitution and capacity. Next in importance to these factors is production. No females are retained in the herd that with a fair chance do not easily exceed R. O. P. requirements in a ten months' period.

Freedom from tuberculosis is also an absolute requirement demanded of every dairy animal on the farm. In 1912 testing was begun and regularly, at least once a year, the provincial authorities test the entire herd. No reactors have ever been found in the herd.



"Colony Rooker Korndyke," Dam Minnie Rookers Poer, a 100-lb. a Day Cow; Sire "Korndyke Butterboy Pride," a Bull With Very Heavy Backing.



Some of the Dairy Herd Grazing on Lakeview Farm.



Panoramic View of Mr. Solly's Farm "Lakeview."

GLENWOOD FARM

Owned by J. J. Logan, Agassiz, B. C.

This farm of 140 acres had acquired considerable local history in the hands of W. A. Anderson with Percheron horses.

In 1912 Mr. Logan made a beginning with Jerseys, buying a small but select group of cattle. These were: "Foxey Blanche," 3753, C. J. C. C.; "My Helen," 3754, C. J. C. C.; "Marigold," 3756, C. J. C. C.; "Brampton Gamboe Lady," (Imported), 2531; "Brampton's Noble's Rozelle," (Imported), 2489, and "Brampton Noble's Combine," (Imported), 2531.

"Brampton Noble's Combine" is still the herd sire and today the herd contains seven females, two year old or over. A young son of Merry Maiden's Brigadier has just been purchased for a future herd sire.

Until 1916 the herd was tested annually for tuberculosis.

So select a foundational herd may be expected to grow into one of the choice Canadian Jersey herds.

Sheep Items.

The best feed for sheep in milk is whole corn and oats, equal weight. Yellow Swede turnips will add succulence to the feed. They should be sliced fine. Alfalfa hay should be given in abundance.

It has been shown by experiments that 100 sheep can be fed for what it costs to feed ten cows, and the return from the sheep will be considerably greater than from the cows.

Low, marshy pastures are unfit for sheep.

For winter lambs the ewes should be bred in July.

The ewes should be kept on pasture until November, and then confined to clear sheds, and feed oats, bran and oil meal.

When a sheep is in bad condition, the corners of her mouth or nose will be drawn up, giving a look of misery. It should at once be removed from the flock and given a dose of salts or oil, with a tonic mixture after it.

There is a vast difference in handling lambs intended for breeding and for the market. The first should be matured slowly, in order to produce good bone and stability, but the latter should be forced to put on fat as quickly as possible, as weight is the only thing that counts.

Considerable attention should be given to ewes and young lambs. A new born lamb is just about the most helpless thing on the farm, and frequently needs a little help to get started in life, but when fairly under way no young stock will give the owner more satisfaction; and it will pay to have patience and do all one can to assist them at first.

FOR SALE

Two first-class registered Holstein bull calves for sale. Dams are both producing between 60 and 70 pounds of milk daily and have good tests. Heavy R. O. P. backing on both sides. Full particulars and pedigrees on request. Prices reasonable.

L. F. SOLLY,

Lakeview Farm. Westholme, B. C.

What Shall We Feed Our Cows?

J. A. McLean, Professor of Animal Husbandry, University of British Columbia

If a man would make a business success of dairying he must constantly study feed costs. The feed bill represents the largest annual investment in connection with dairying. The market value of different feeds varies greatly, and from month to month the cost of the same feed slides up and down (chiefly up) to a marked extent. Consequently every man must study his sources of feed closely and buy with care if he would succeed in having any margin of profit in milk production.

From the following feeds at accompanying prices I have been asked what the dairyman should feed:

	Per ton
Turnips	\$15.00
Mangels	6.00
Clover Hay	20.00
Mixed Hay	20.00
Alsike	20.00
Bran	34.50
Shorts	42.00
Crushed Oats	48.00
Barley	55.00
Linseed Oil Meal	68.00
Cotton Seed Meal (prime) ..	68.00
Cotton Seed Meal (good) ..	68.00
Soy Bean Meal	68.00
Alfalfa Hay	24.00
Silage (Corn)	6.00

To answer the question a few things must be definitely arranged in every man's mind. We must always hold distinctly in mind that in buying feeds we are undertaking to sup-

ply the cow with the things she requires to produce milk plentifully and profitably. These things are, digestible protein, and energy-giving foods. The energy values of the feeds under consideration are represented by their total digestible nutrients. So then our effort is to supply digestible protein and total nutrients. Every man knows, or should know, that these must be supplied in a palatable form; that a cow requires variety and succulence in her ration, and, consequently, time need not here be spent in a discussion of these things.

Table I shows the number of pounds of digestible protein and of total digestible nutrients found in 100 pounds of each of these feeds. Turnips, mangels and silage all run practically low because they are watery or succulent feeds. Their succulence makes the use of them imperative, for milk is not as profitably made on dry feeds alone. They are also very low in protein, their chief nutrient value being in their carbohydrate content. These feeds, because fed in quite large amounts, do contribute a considerable portion of the total nutrients and the choice amongst them is determined on that basis.

Linseed Oil Meal, Cotton Seed Meal and Soy Bean Meal all run very high in digestible protein. They are all quite palatable and excellent feeds for milk production; their values determine which shall be used.

Barley shorts, Bran and Oats are all rather low in protein, but carry a very good content of total nutrients. They are the con-

centrated carbohydrate feeds and especially valuable in augmenting the total nutrients in a ration.

The conspicuous thing regarding the hays is their wide variation in protein. Alfalfa carries most protein and most total nutrients, which makes it a particularly attractive feed. Red Clover is nearly as good in total nutrients, and from a crop standpoint has distinct advantages over all the other hays.

But the thing which determines which feed shall be used is the price per pound which the protein on one hand, and the total nutrients on the other, cost, at the market price.

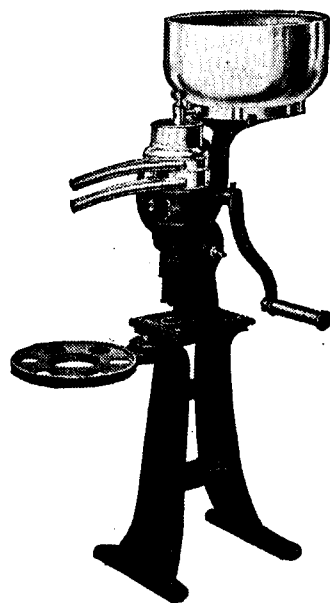
Table II gives the number of pounds of digestible protein in each ton of these feeds. It also gives the cost of a pound of protein in each feed if the feed is used with the sole purpose of supplying protein.

Table III gives similar information regarding the total nutrients.

It is evident from Table II that the succulent crops and the cereal grains are very expensive sources of protein. From these tables the oil meals and the legume hays stand out as the only economic source of protein, the oil meals even at the very great cost per ton being the cheapest source of this necessary constituent. But in considering Table III it is evident that these same foods cannot profitably be used as sources of anything else but protein, the total nutrients costing too much per pound. It is most in-

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While our boys are fighting for the Empire let the "Empire" line of labor-saving machines do your work.



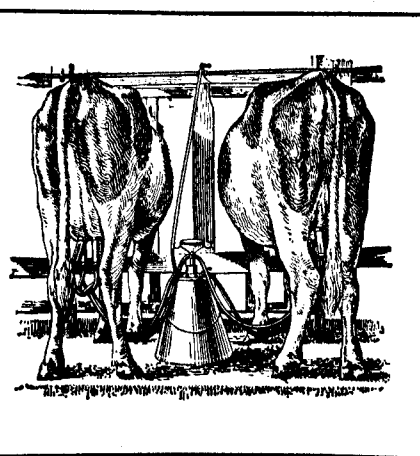
The "Empire" Mechanical Milker

is all that the name implies; it has proven its supremacy amongst all milking machines.

It is easy to operate, easily cleaned, while one man can milk more cows with an "Empire" milker in a given time than three can do by hand, producing cleaner and better milk.

Get an "Empire" Gasoline Engine for your power; they are absolutely dependable, efficient and economical. We have them in all sizes from 1½ to 22 H.P.

The "Empire" Cream Separator is the recognized standard among dairy-men. Made in different sizes with capacity from 200 to 1050 pounds per hour.



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Manufacturers' Agents and Dealers in All Kinds of Dairy and Machinery Supplies
1128 HOMER STREET, VANCOUVER, B. C.

teresting to see in Table III that the clover hays, mixed hays and alfalfa are the cheapest sources of energy, or total nutrients, for these hays stand right next to the oil meals as cheap protein sources. At the prices given no man can feed turnips to cows and make a profit. Evidently they are too valuable as human food. Silage is a cheaper succulent feed than mangels, though the analysis available is for well matured silage corn, which is undoubtedly a better grade than is made in most British Columbia districts.

From a study of Tables II and III, it is evident that the wise dairyman will feed as much clover or alfalfa hay and silage as his cows will handle. Some bran should be used for its phosphorus content, which does not appear in the analysis; and if a concentrate is needed to make up the necessary total nutrients bran is the cheapest, with shorts next, and oats next in order at the prices given.

Table IV shows the needs of cows of various sizes, both for maintenance and milk production. From this table one can figure pretty close to the needs of any average cow. Table V simply gives these requirements figured out for a particular cow. The question arises what to feed her. From Tables II and III one would select:

Feed—	No. Lbs.	Containing Digestible Protein.	Containing Total Digestible Nutrients.
Silage	35	.385	6.195
Clover Hay	14	1.064	7.126
Bran	5	.595	3.100
Shorts	4	.526	2.772
Barley	4	.360	3.176
TOTALS		2.930	23.369

The above ration is varied and palatable; it contains the necessary protein and a trifle more than the needed total nutrients. The only fault with the ration is its high content of total dry matter, but any well developed cow of this size will readily handle such a ration. In addition it is drawn from the most economic sources of food. The above ration costs 52.2 cents per day; or the feed cost of one pound of milk is 1.3 cents; or the feed cost of one gallon (ten pounds) of milk is 13 cents.

Suppose we were to supply the necessary food for this same cow by the following rations:

Feed	No. lbs.	Cost in Cents
Silage	35	10.5
Alfalfa Hay	14	16.8
Crushed Oats	6	14.4
Barley	6	15.5
Bran	2	3.45
Total day's feed costs		61.65

There will be supplied 3.151 pounds of digestible protein, which is rather too much; and 22.5 pounds of total nutrient, which is just the right amount. This latter ration will cost 61.65 cents per day, or over seven-teen per cent. more than the previous ration.

From the above tables one can readily figure out the cost of his ration and set about to improve it.

Foot Note:—The prices per ton furnished on the various feeds were given me as wholesale prices November 1, 1917.

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Christmas and New Year Cards printed to your order in our own manufacturing department.

Prompt delivery guaranteed.

MAIL YOUR ORDER NOW, in time to reach the boys at the front and your friends abroad.

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Opposite C. P. R. Depot Vancouver, B. C.

GET IT AT



PHONE SEYMOUR 8000

“Pride of Vancouver” FLOUR

Introduces “Good Baking” Into Your Home

OUR OTHER “PRIDE OF VANCOUVER” PRODUCTS
ARE EQUALLY AS GOOD—TRY THEM—
ROLLED OATS EVAPORATED MILK
COCOA and FANCY BISCUITS

Woodward Department Stores, Limited
VANCOUVER, B. C.

WRITE FOR A COPY OF THE “G. I. A. W. NEWS.”

TABLE I.
Analysis of the Feeds

FEED	Digestible Protein	Digestible Carbohydrates	Digestible Fats	Total Digestible Nutrients
Turnips	1.0	6.0	0.2	7.4
Mangels	0.8	6.4	0.1	7.4
Silage (Corn)	1.1	15.0	0.7	17.7
Alfalfa Hay	10.6	39.0	0.9	51.6
Clover Hay (Red)	7.6	39.3	1.8	50.9
Clover Alsike	7.9	36.9	1.1	47.3
Mixed Alsike	4.7	39.9	1.3	47.5
Bran	11.9	43.3	3.0	62.0
Shorts	13.4	46.2	4.3	69.3
Crushed Oats	9.4	51.4	4.1	70.0
Barley	9.0	66.8	1.6	79.4
Linseed Oil Cake	30.2	32.6	6.7	77.9
Cotton Seed				
Meal (Prime)	33.4	24.3	7.9	75.5
Cotton Seed				
Meal (Good)	31.6	25.6	7.8	74.8
Soy Bean Meal	38.1	33.9	5.0	83.2

TABLE II.
Cost of Protein

FEED	Lbs. Protein in 1 Ton	Cost per Ton	Cost of 1 lb. Protein in Cents
Soy Bean Meal	762	\$68.00	8.92
Cotton Seed			
Meal (Prime)	668	68.00	10.20
Cotton Seed			
Meal (Good)	632	68.00	10.75
Linseed Oil Meal	604	68.00	11.25
Alfalfa Hay	212	24.00	11.27
Alsike Clover Hay	158	20.00	12.66
Red Clover Hay	152	20.00	13.16
Bran	238	34.50	14.50
Shorts	268	42.00	15.17
Mixed Hay	94	20.00	21.30
Oats (Crushed)	188	48.00	25.53
Silage (Corn)	22	6.00	27.27
Barley	180	55.00	30.55
Mangels	16	6.00	37.50
Turnips	20	15.00	75.00

TABLE III.
Cost of Total Nutrients

FEED	Total Digestible Nutrients in 1 Ton	Cost per Ton	Cost of 1 lb. Total Nutrients in cents
Red Clover Hay	1018	\$20.00	1.96
Mixed Hay	950	20.00	2.11
Alsike Clover Hay	946	20.00	2.12
Alfalfa Hay	1032	24.00	2.32
Silage (Corn)	254	6.00	2.36
Bran	1240	34.50	2.78
Shorts	1368	42.00	3.03

Oats (Crushed)	1400	48.00	3.43
Barley	1588	55.00	3.47
Mangels	148	6.00	4.05
Soy Bean Meal	1664	68.00	4.09
Linseed Oil Meal	1558	68.00	4.40
Cotton Seed			
Meal (Prime)	1510	68.00	4.50
Cotton Seed			
Meal (Good)	1496	68.00	4.54
Turnips	148	15.00	10.14

TABLE IV.

Feed Requirements of Cow

Required for Maintenance	Digestible Protein	Total Digestible Nutrients
A 1000 lb. Cow	0.77	7.925
A 1100 lb. Cow	0.77	8.717
A 1200 lb. Cow	0.84	9.509
Add for each pound of—		
3 P.C. milk	0.047	0.284
3.5 P.C. milk	0.049	0.313
4.0 P.C. milk	0.054	0.343
4.5 P.C. milk	0.057	0.372
5.0 P.C. milk	0.060	0.398

TABLE V.

A 1100 Pound Cow Giving Forty Pounds of Four Per Cent. Milk

Requires	Digestible Protein	Total Digestible Nutrients
For Maintenance	0.77	8.717
For Milk Production	2.16	13.720
Total day's ration	2.93	22.437

GENERAL FARM ITEMS

A mixture prepared as follows will keep the agricultural implements from rusting: Melt together lard and powdered resin, one part of the latter to three of the former, and if it is desired add a little lampblack. Paint the iron or steel, with a brush.

To find the number of tons of hay in a mow, multiply together the length, height and width in yards and divide by 15, if the hay be well packed. If the mow be shallow and the hay recently placed therein, divide by 18, and by a number from 15 to 18, according as the hay is well packed.

Burlap curtains make good protection for windows and doors of stables and other animal houses. They allow admission of air but do not allow draughts. A burlap grain bag ripped open and tacked over the opening of the sow or hog house will keep out cold winds and rain.

EDENBANK AYRSHIRES
Utility and Beauty Combined

Young Bulls for sale, (out of R. of P. Dams) from one to fifteen mos. old, tracing closely to the world's championship.

Gerranto Dora 2nd—20.023 lbs. milk, 804.75 butter fat.

Netherhall Brownie 9th—18.110 lbs. milk, 820.00 butter fat.

Jean Armour—20.174 lbs. milk, 774.73 lbs. fat.

Garclough May Mischief—25.339 lbs. milk, 894.91 butter fat.

Edwin A. Wells, Sardis, B. C.

A Short Course in
Agronomy and Animal Husbandry

OFFERED BY

The College of Agriculture, University of British Columbia, January 8th to January 18th, 1918.

This combined course is especially planned to meet the needs of those who desire concentrated information on soils, crops, feeds and live stock.

Every afternoon is devoted to practical demonstration and judging. Lectures are reduced to a minimum.

For full information and programme, address—

THE REGISTRAR,

The University of British Columbia
VANCOUVER, B. C.

Hog Raising--How to be Successful

(By an Authority.)

The Boar.

To make a success of hog raising the chief feature is to use nothing but pure-bred males, even though the sows be merely grades. Always select a lengthy, heavy boned boar. Such a boar will get pigs which grow faster and make cheaper gains than the pigs from a small, short bodied, fine-boned boar.

The age at which a young boar may be first used depends entirely upon his development. Some boars may be used to a few sows when not more than seven months old without apparent injury. As a rule, it is safer not to use a boar before he is eight months old, and to use him as sparingly as possible until he is a year old.

Summer management is usually simpler than winter. A pasture lot provided with shade is one of the best places to keep a boar. The grass or clover, will furnish the bulky, succulent feed necessary for health, and gathering part of his food from pasture compels the boar to take exercise. If it is not possible to provide the pasture, he should be liberally supplied with green feed in his pen.

The Sow.

A sow selected for breeding, whether pure-bred or grade, should be from a prolific mother, and by a boar that comes of a prolific family. It is safest to select a sow from a matured mother who has had a chance to demonstrate her usefulness. A

During the period of gestation the sow should be kept in good strong condition, but not overloaded with fat. In districts where corn is plentiful, there is a temptation to feed almost exclusively on corn, but this cannot give the best results, because corn does not furnish enough bone and muscle-forming constituents to properly develop the unborn pigs. The ration recommended for the boar—viz., equal parts ground oats, and wheat middlings, will answer very nicely for the sow. In cold weather, if sows have a good deal of outdoor exercise, they may be fed more corn with safety than when they are kept pretty closely confined.

As in the case of the boar, the sow requires something besides meal, and the furnishing of some such feeds as roots, alfalfa, or red clover hay, is even more important than in feeding the boar. Skim milk is also excellent but it is not always available for sows.

In cold weather, when sows are fed outdoors, very little water should be used in mixing their feed. It will be found better to furnish them with water separately, should they require it. If they are fed roots, they will take very little water in cold weather. It should be seen to, however, that they have water when they need it, and in hot weather an abundant supply of fresh water is very important.

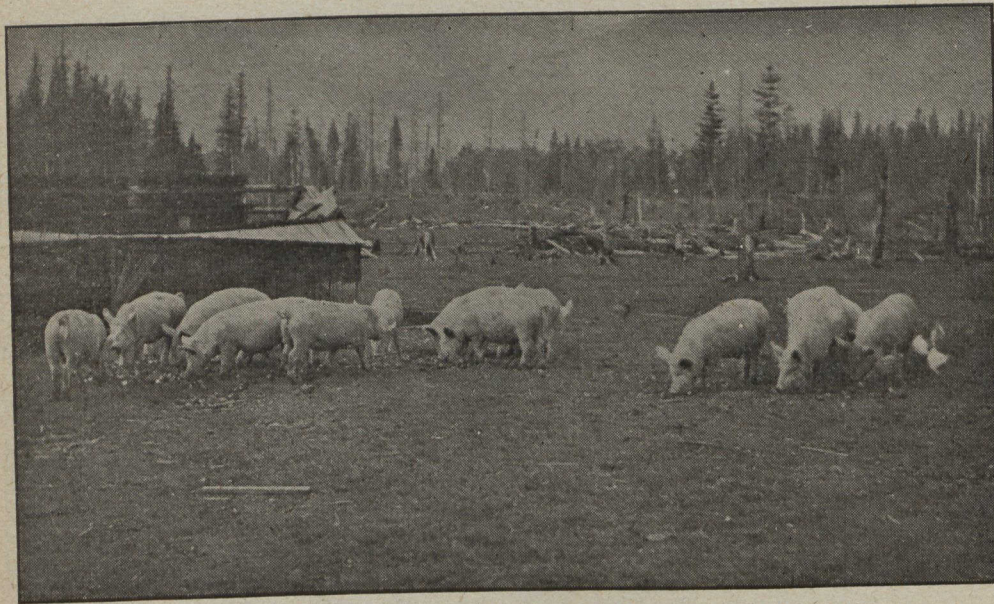
Constipation is the bane of the swine breeder, and if the sow becomes constipated before she farrows, the chances are that she will lose her pigs and possibly her own life. Constipation, therefore, is one of the main things to guard against at this time. If a sow is taken directly from a pasture field, shut up in a pen, and fed upon an exclusive meal ration, trouble is sure to occur. Radical changes in feeding should be avoided and the ration kept practically the same after taking the sow into the pen as it was before. If anything the feed should be made rather more sloppy. A small amount of linseed meal (oil meal) or ground flax seed added to the ration is also helpful in preventing constipation.

The farrowing pen should be dry, well ventilated and free from draughts. It is a good plan to provide the pen with a guard rail made of two by eight-inch planks fastened with their edges against the sides of the pen a little above the bed. These prevent the sow from laying against the partition, and lessen the danger of injury to the little pigs, which often find the space under the guard a very convenient refuge.

The amount of bedding that should be used is a matter of opinion, but it is advisable to give active sows in comparatively light condition a liberal amount of bedding, but sows which are in high condition, or which are at all clumsy, had better be given only a moderate amount of cut straw. It pays to treat sows kindly and to have them quiet at this time.

After farrowing the sow should not be disturbed, and if she lies quietly for ten or twelve hours so much the better. When she wants anything she will go to the trough for it. At first she should have little more than a drink. A very thin slop of middlings and water will answer very well. If the weather is cold, tepid water should be used. During the first three days, the ration should be kept very light, and after this gradually increased, taking about ten days to reach full feed. A good mother with a large lit-

(Continued on Page 14)



Hog Raising in British Columbia.

The most essential thing to the health and vigor of an animal is exercise. In summer it is a comparatively simple matter to provide exercise in a paddock or pasture lot, but in winter it is more difficult. A roomy pen should be provided, with a sheltered outside yard.

It requires good judgment to keep a boar in the best possible condition. Extremes are to be avoided. The over-fat boar does not make a satisfactory sire, as a rule, and a half-starved boar cannot transmit vigor and constitution to his progeny.

An exclusive meal ration will not give good results, especially if the ration is made up of corn. Corn is fattening but its exclusive use is debilitating, and the feeder must combine something with it to get good results. Equal parts ground oats and wheat middlings make a first class meal ration when corn is not used. It gives sufficient bulk and is nutritious without being heating or too fattening.

But a boar needs something besides grain and meal to be in his best condition. Skim milk and buttermilk are excellent, and will give good results with meal even if nothing else is used. In winter, roots of any kind are much relished. If roots are not available, alfalfa hay of fine quality, or even reu clover, may be used to give bulk to the ration.

sow is more likely to make a good mother if she has at least twelve well-developed teats, set well apart, and the front ones well forward on the body. When a really good sow is once obtained, she should be kept in the herd as long as she retains her usefulness.

The age at which a young sow is first bred will depend upon her development, but it is not advisable to breed her before she is eight months old, so that she will be at least a year old when she produces her first litter.

Though exercise is important in the case of the boar, it is doubly so with sows during the period of gestation. Without considerable exercise during this time, sows cannot be made to give satisfactory results. In summer, pasture should be provided in which there is plenty of shade.

The greatest difficulty will be in giving the sows sufficient exercise during the winter. Where only a few sows are kept, it is often possible to give them the run of the barnyard, where they will take exercise rooting in the manure or working in scattered straw or chaff to find what little grain it may contain. If a dry, well-bedded sleep-place is provided, which is free from draughts, the conditions are about as good as can be obtained.

Bacon Is A Military Necessity

Bacon is the most compact form in which meat and fats can be supplied to the armies.

It takes up the minimum of space in freight cars, ships, transport wagons and in supply depots at the front. It is easily handled, and it keeps.

Bacon, on account of its large percentage of fat, is the great outdoor food. Men who work and travel hard, sleep in the open air, and are exposed to the wet and cold, require a large amount of fatty foods, because such foods best supply the nutriment, the

energy and the heat-producing qualities necessary. Bacon fortifies the body against exposure, repairs the wear and tear of hard work and is easily digested. It is also easily and quickly cooked.

The Allied Armies require enormous supplies of bacon, the British Army ration allowing a quarter pound per man per day. With the United States raising great armies, the demand for bacon will be still further increased. Where is the supply to come from?

32,425,000 Hogs Short

There is a shortage of 32,425,000 hogs in Europe. The hog population of the United States is 10% below normal. The number of hogs slaughtered in Canada in September, 1917, shows a decrease of nearly 27% compared with September, 1916. Dispatches from Denmark state that the prohibition of exports of pork products is anticipated in order

to insure an adequate supply of meats and fats for the Danish population.

The situation is serious. The armies must be assured adequate supplies of bacon. A great increase in the production of hogs in the United States and Canada is a military necessity.

Save the Young Sows

Young sows which are slaughtered now only produce about 150 pounds of meat per sow, whereas each of these sows, through her progeny, could produce at a moderate estimate 1,500 lbs. of meat within a twelve-month period.

The United States has committed itself to greatly increase its hog production. Canada will do her share. Every pound of pork that can be raised is urgently needed.

The Dominion Government and the Provincial Governments are co-operating to encourage greatly increased production in hogs and to safeguard the growers.

Already steps have been taken to control the spread in price between that received by the producer and that paid by the consumer. The grower is assured his fair share of the price paid by the consumer.

The Flour Mills are under a form of license and allowed a profit of 25 cents per barrel on the flour only—the bran and shorts will be sold at cost, and are to be free from adulteration.

The huge United States corn crop is under effective American control to prevent speculation and to insure none of its going to Germany. There will be an abundance of feed from this source, as the 1917 crop is 600,000,000 bushels greater than last year's.

The buying of the meat for the Allies will all be done by the one commission representing the Allies, which will be an influence in stabilizing the market and preventing wide fluctuations in price.

The great shortage of hogs in Europe and the vast demands of the Allied armies for pork products indicate a bright future for the swine industry in Canada.

There is an individual responsibility, and every man who can raise hogs should seriously consider the possibility of raising one or two extra litters in 1918.

Dominion of Canada Department of Agriculture

**LIVE STOCK BRANCH
OTTAWA**

ter requires very liberal feeding, but if litter is small, it may be necessary to reduce the feed.

Equal parts of finely ground oats and wheat middlings allowed to soak between feeds, makes an excellent ration. If sweet skim milk can be added to the mixture, it makes an ideal ration. A limited amount of bulky, succulent feed helps to keep the sow healthy.

When the pigs are born, the attendant should be on hand to see that everything does well. If the pigs are strong and the sow lies quiet, it is better not to interfere. If the pigs seem somewhat weak, or if the sow is very restless, it is safer to place the pigs in a well-bedded box or basket to keep them out of the way until all are born, of course being sure to keep them warm by throwing a blanket over them. The pigs should be placed to the teat to suck as soon as possible.

By the time the pigs are three weeks old they will have learned to eat, and it is a good plan to give them access to another pen in which is kept a small trough. Here they can be fed a little skim milk with a very little middlings stirred into it, the quantity of middlings can be increased gradually as the pigs grow older. If they can be taught to nibble at sugar-beets or mangels during this time, so much the better. A small amount of soaked whole corn or almost any other grain, scattered on the floor of the pen, will cause them to take exercise while hunting for it. If it is not possible to provide an extra pen, the sow may be shut out of the pen while the pigs are being fed.

Exercise is very important for young pigs, and every possible means of securing it must be adopted. If they are kept in a small pen with the mother, some of the best of them will likely become too fat, and probably sicken and die. Out-door exercise is especially beneficial, but pigs should be protected from cold winds or from very hot sun. If the sow is turned out with her pigs, do not give her a very large range at first, as she is likely to travel too far and unduly tire the pigs.

Boar pigs not intended for breeding purposes should be castrated before weaning to get the best results.

The average farmer will find it most profitable to wean his pigs early enough to permit two litters a year to be raised. If the young pigs have been taught to eat as described, and skim milk is available, they may be weaned successfully when six weeks old, but it is seldom advisable to do so if they appear to be thriving with the sow. Skim milk and middlings make about the best feed for young pigs after weaning. When the pigs are first weaned, it is better to feed four times a day, giving only a small quantity of feed each time, and taking care to keep the trough clean. When well started, they may be changed to three feeds a day.

When pigs are about three months old a little grain may be introduced into their ration. Two parts of middlings and one part of corn meal or ground barley, mixed with skim milk to form a slop make an excellent ration for growing pigs. As the pigs grow older the proportion of grain to middlings may be increased, but at no time should they be fed exclusively upon corn, because corn is a poor bone and muscle former. A few roots will be found most helpful in keeping young pigs healthy during the winter, and green feed of almost any kind will answer the purpose during the summer.

Hogs and Hoglets.

The most profitable hog generally is the one that farrows early in spring, and sent to market the latter part of the same year.

A hog less than a year old that can be made to weigh 200 to 250 pounds will be profitable.

It seldom pays to keep a hog over winter unless the conditions are favorable.

Twenty-one pigs fed on rape for eight weeks gained 57 pounds more weight than the same number fed on clover for the same time. But rape alone does not make an ideal food for gain. Some grain must be fed.

The Department of Agriculture recommends the following remedy for hog cholera: Wood charcoal, one pound; sulphur, one pound; sodium chlorite, two pounds; sodium bicarbonate, two pounds; sodium hyposulphite, two pounds; sodium sulphate, one pound; antimony sulphide, one pound. Pulverize and mix thoroughly and give one large tablespoonful for each 200 pounds weight of hogs once a day.

Treat the herd boar kindly, but be careful.

Feeding sour slops is a mistake.

Less corn and more bran and oats should be fed the hog that loses control of his legs. In bad cases, eight to ten drops of nux vomica in the feed twice a day is recommended. Feed plenty of green food to keep the bowels open.

It is best to feed hogs for not longer than ten months, as after a year old they are not so profitable. Medium sized hogs sell best.

The best "condiments" for a hog are coal ashes, salt and copperas.

Feed the brood sow a variety like bran, roots, etc. Corn should not be fed in large quantities, as it is fattening, and promotes growth of neither the sow nor pigs. During winter green vegetable food should be given.

It costs about \$10 a year to maintain a brood sow.

The standard for a good breeding sow is: Rather roomy and long, well sprung ribs, broad loin, deep sides, and some length of neck. The sire should be shorter, more compact, finer bone.

A pig should not go over six weeks without castration.

Provide the pasture with some shade trees and the animals will derive more good from their feed. Hogs should be provided with very shady pasture in hot weather, where they can lie on or in the moist, cool soil.

This is the government's conditioner for hogs, excellent for "corn cholera," or other digestive derangements of hogs:

Wood or cob charcoal	1 lb.
Sulphur	2 lbs.
Sodium bicarbonate (baking soda)	2 lbs.
Glauber salts	1 lb.
Sodium chloride (common salt)	2 lbs.
(Or, Epsom salts)	2 lbs.
Antimony sulphide	1 lb.

Pulverize each of the ingredients well and mix them together thoroughly. The dose is a tablespoonful for each 200 pounds' weight of the hogs, given twice a day in shorts or bran slop feed.

Hogs in England are given a great variety of feeds—potatoes, turnips, carrots, beets, peas, beans, barley and oats. The grain is either steamed or ground and the vegetables usually cooked and mixed with swill. Grasses and clovers are cut and fed during summer time. English hogs tend more to

the bacon type than do those raised in America. If lean meat is wanted we must feed a greater variety and select muscle forming foods.

The only tests in feeding buttermilk to pigs to ascertain its comparative value, that we know of, were made at the Ontario Experiment Station. These experiments show that buttermilk is practically equal to skim milk as a feed for pigs. At the same station 355.6 pounds of skim milk proved equal to 100 pounds of meal. Therefore, if the conclusions of the Ontario Station be correct, four or five pounds of buttermilk are equal to one pound of meal.

The hog's legs perform a function not known to any other animal, and that is an escape pipe or pipes for the discharge of waste matter or sweat not used in the economy of the body. These pipes are situated upon the inside of the legs, above and below the knees in the fore legs and above the gambrel joints in the hind legs, but in the latter they are very small, and the functions are light.

Upon the inside of the forelegs they are, in the healthy hog, always active, so that moisture is always there about and below these orifices or ducts in the healthy hog.

The holes in the legs and breathing in the hog are his principal and only means of ejecting an excess of heat above normal, and when very warm the hog will open the mouth and breathe through the channel as well as the nostrils.

The horse can respire through all the pores of its body, such as a man, and cattle do the same to a limited extent, but the hog never. His escape valves are confined to the orifices upon the inside of his legs.

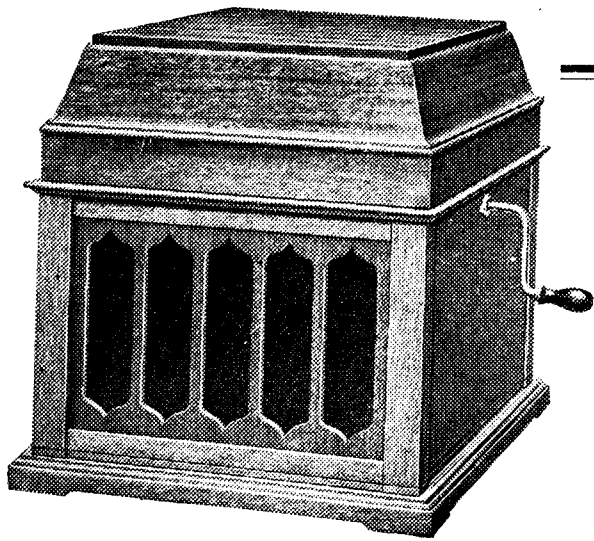
People often wonder why it is that the hog dies so suddenly when he runs rapidly or takes quick and violent exercise by fighting. But when you consider the few escape pipes, their small capacity and remoteness from the cavity where the heat is generated, the wonder is not that he dies quickly when overheated, but that he lives as long as he does when heated up.

General Farm Items

The temperature of a shade tree is said to be below 50 degrees in summer, hence the cool atmosphere in its shade.

According to the Department of Agriculture of France, a toad is worth \$9; a lizard, \$9 a swallow, \$20; a titmouse, \$8; the robin, \$4; a bat, \$30; an owl, \$12; a screech owl, \$16; a fern owl \$30. That looks bad when some of us come to think over and call to mind how many of our friends we have killed.

Poisonous plants are almost as much of a nuisance as the insect pests, and ought to be attacked through a kind of legislation. Poison ivy increases very fast along old stone walls and fences, and becomes a nuisance anywhere near gardens or orchards. For the inflammation that follows poison of this plant, a professor in the Harvard Medical School recommends applying alcohol, soap and water, which will offset the poisonous oil that causes the trouble. The plant itself is best checked by repeated cutting back. The young growth is easily killed with a spray of kerosene and water.



What kind of music will there be in your home this Christmas?

CHRISTMAS AND MUSIC are inseparable. You cannot think of Christmas without thinking of music—all kinds of good music. What kind of music will there be in your home this Christmas? What instrument and what voices will entertain you?

Have you ever stopped to realize that all voices, and all musical instruments, excepting one, have their limitations? As wonderful as a piano is, it can give you only piano music; as beautiful as an organ is, it can give you only organ music; as marvelous as the human voice is, it can only sing. It is the same with the violin, the cornet, the accordion or any other instrument which you might have in your home or might consider purchasing. These are excellent in their way, but we are sure you will agree that none of them is completely satisfying.

It is different with the New Edison Diamond Amberola. It has no musical limitations, for it is all voices and all instruments in one and it brings into the home all kinds and classes of music, from the greatest of operatic numbers sung by the most famous of singers to the simplest of popular and comic songs sung by the cleverest performers in their line; from the performances of great military bands and symphony orchestras to the snappy music of the ever popular banjo.

The New Edison Diamond Amberola is not an instrument that you must forbid the children touching for fear of putting something out of order. Even a very young child can readily learn to operate this marvelous instrument, for it is simplicity in itself and is not readily put out of order, and the Blue Amberol records

are almost unbreakable and unwearable. With the Amberola you do not even have to bother to change needles. There are no needles to change. Instead of needles Mr. Edison uses a GENTLE DIAMOND, ground and polished to fit perfectly in the grooves of the record, and so perfectly round and smooth that it has no effect on the record. As you know, a diamond never wears out. To operate the Edison Amberola all that is necessary is to put on a record and lower the reproducer so as to bring the diamond stylus (reproducer point) into contact with the record. Besides keeping the Amberola wound up and oiled, there is nothing else to do.

Read Our Liberal FREE TRIAL OFFER

It is Mr. Edison's wish that you hear his Diamond Amberola in your home. In order that Mr. Edison's wish should be fulfilled, we will place a New Edison Diamond Amberola and a choice selection of Blue Amberol records in your home for three days. Play them to your heart's content, invite your friends in to enjoy the music with you. At the end of three days tell us that you want to buy the instrument and records for cash, that you want to buy them on terms, or that you do not care to purchase at that time and request us to call for the Amberola and the records. We leave it entirely to you whether you keep the instrument and records or whether you send them back. Whatever your decision we shall consider the matter at an end. You will be under no obligation whatever. We will be the ones to feel obligated to you for permitting us to place the instrument and records on trial in your home. Thousands of families throughout America are enjoying these free trials because of Mr. Edison's desire that no one should miss hearing his marvelous invention. Why not you? You are just as much entitled to the opportunity as anyone else, and there is no reason why you should not take advantage of it. When requesting your free trial, please use the coupon at the bottom of this page.

Send for the Beautiful Amberola Booklet. It is FREE.

The Music You Get When You Own an EDISON AMBEROLA

Music was never more welcome in the American home than it is today. Home has never meant more to Americans that it does today. With some of our boys at the front and many preparing to, the tenderest and deepest emotions surge through our souls. It is then that nothing is more appropriate, than good music as the companion of our leisure hours. Whatever your tastes, whatever your mood, there are many selections in the Blue Amberol Record Catalog to suit—beautiful old hymns that seem to just lift you out of your immediate surroundings to a higher plane where the spirit is free and unfettered by the irksomeness of the daily routine—thrilling band records that just

make you feel like getting up and marching around the room—noble patriotic numbers that would stir the heart of a traitor—tender old and new songs and ballads that go straight to your heart—majestic grand opera that appeals to the deepest of human emotions—lively dance pieces, ragtime and funny records—entertainment of all kinds for young and old.

So that you may have an idea of the many wonderful selections to be found in the Blue Amberol Record Catalog, we have picked a few here and there and they're printed below. Look them over. You are sure to find many of your favorites.



THIS TRADE MARK IS THE PROPERTY OF THOMAS A. EDISON

Thomas A. Edison

FOR CHRISTMAS

Angels from the Realms of Glory
Bells of Christmas
Birthday of a King
Hail! Hail! Day of Days
Hark! Hark! My Soul
It Came Upon the Midnight Clear
Joy to the World
Night Before Christmas
Old Sam's Christmas Hymn
O Little Town of Bethlehem
Once in Royal David's City
Ring Out the Bells for Christmas
Ring Out, Wild Bells
Santa Claus
Silent Night

Star of Bethlehem
Sweet Christmas Bells
When Christmas Bells are Ringing

SACRED

Ave Maria
Beautiful Isle of Somewhere
Crucifix
God is Love, His Mercy
Brightens
My Ain Country
Rock of Ages
Face to Face

QUARTETS

The Bridge
Come Where My Love Lies Dreaming
Darling Nellie Gray
Maple Leaf Forever
Massa's in de Cold, Cold Ground

Laughing Song
The Rosary
We're Tenting To-night
Way Back Home
HAWAIIAN
Aloha Oe (Farwell to Thee)
Kamehameha March
Medley of Hawaiian Airs
Moani Ke Ala
Walalae (Waltz Song)
Koloa
Pulupu

BANDS

At the Mill March
Battle of the Marne—Descriptive
Benediction of the Polgnards—Huguenots (slow-worm)
Humpty Dumpty Rag
In the Clock Store—Descriptive Fantasia
Jolly Coppersmith—with Any! Singing and Whistling
My Old Kentucky Home
Fantasia

United States Passing in Review

INSTRUMENTAL SOLOS

I Hope I Don't Intrude, Bells
King of Air March, Xylophone
Kiss Waltz, Saxophone
Lullaby—Jocelyn, Cornet.
Medley of Southern Airs, Banjo
Old Black Joe, Piano.
Peg o' My Heart, Violin.
DANCE
Carnival One-Step
Destiny Waltz
Good-Night Waltz
Money Musk Medley Virginia Reel
Oh, You Silvery Bells Medley Two-Step
Old Comrades March
Stop! Look! Listen! Fox Trot
Ticking Love Taps Fox Trot
Leg of Mutton One Step

GRAND OPERA

Elixir d'Amore—Una furtiva lagrima
Faust—Air des Bijoux
Pagliacci—Prologue
Rigoletto—Caro nome
Trio from Faust
Bridal Chorus from Lohengrin
Mignon—Ah! Non credevi tu

VOCAL DUETS

All Aboard for Blanket Bay
As We Parted at the Gate Auf Wiedersehen—The Blue Paradise
Bacchante (Oh, Lovely Night)—Tales of Hoffman
Every Little Movement—Madame Sherry
For You
Good-Bye, Good Luck, God Bless You
Land of Golden Dreams I Was Never Nearer Heaven in My Life

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The Apple Industry of British Columbia

A Comparative Study

By F. M. Clement, Professor of Horticulture, University of British Columbia

The writer, by request, is submitting the following article on the British Columbia apple industry. It is not, however, without some diffidence that the task is undertaken. More than four provinces each claim first place, or equal place with the first, in the production of apples of quality. The writer has had opportunity to study conditions, professionally and, he hopes, impartially, in only two provinces besides British Columbia. Some similarities and a great many differences are, however, outstanding. No attempt is, however, to be made to compare all the provinces, but rather British Columbia with the Eastern provinces as a whole, and, more particularly, Ontario.

With the exception of possibly one or two specialized districts, when travelling through Ontario one is struck with the fact that the apple orchards are largely scattered. A few acres here and a few acres there, on many different farms, go, when taken in the aggregate, to make up an industry that is almost equal in quantity of fruit produced to that produced in all the rest of Canada. In a great many cases the orchards have not a thrifty, progressive appearance. In other cases they are used as pasture lots for calves or cattle; in other cases they supply shade for the pigs or sheep, and in some other cases they apparently serve no useful purpose at all. But not always. A great many orchards, hundreds of acres in all, are well tended, well cultivated, pruned and sprayed, and well managed and from these come the great quantities of fruit that in normal years supply a great home demand with large quantities, a great desire for the old home fruit on the Prairies and a deepening and broadening foreign market that ever reaches out for a well known fruit, of good variety, packed in the long established package—the Eastern barrel.

Production, however, fluctuates a great deal. Even under normal weather conditions or under three year averages there is a gradual increase or decrease in production over stated periods of years. Price to a very large degree—over averages of years—determines the production and also the grade and quality. All of Ontario, unlike British Columbia, is a non-irrigated area. Trees grow and thrive more or less in the fruit districts under indifferent care. At any rate, they seldom die when partially neglected. If death comes it is more likely to be from pest or excess water than lack of cultivation or application of water. Irrigation is nowhere used in Ontario apple orchards. In times of fair and good prices these partially neglected orchards are brought under cultivation, pruned and sprayed, and usually after one year of careful treatment respond in direct proportion to the amount of work put on them. If prices continue good or fair the treatment is in direct proportion and is continued until over production again begins to be felt and prices fall. These orchards are then neglected. Ontario has just passed through a "Rejuvenation of Old Orchards Period." Prices for a ten years' average until three years ago were good, fair and excellent. During the later years prices have been lower and this, coupled with adverse weather con-

ditions, has once more induced the grower to turn his thoughts to other lines.

We have, then, the two great lines of apple production in Ontario. First, the careful, thoughtful grower who follows and studies his business year after year and is the man to be faced annually in the great competitive markets and, second, the spasmodic producer who works with the times, directs his efforts in proportion to price and very often disarranges the plans of the regular producer. This latter man is no inconsiderable factor also, because if prices are fair he very often throws a large quantity of fruit of the poorer grades on the markets.

The great plantings of new orchards in Ontario are, except to a small degree, not yet in bearing. A great many of these have been planted and cared for by business fruit men on a business basis and it is to be expected that in the next decade and less, larger quantities of the better grades and varieties will be coming on the markets from these orchards. The plantings are heavy, 2,073,576 non-bearing trees in 1911 compared to British Columbia's total planting of approximately 2,100,000 trees. (In these figures no account is taken of trees lost due to winter injury in either province. British Columbia has suffered most in this respect). It is a mistake for the growers of this fair province to feel in any way that the struggle for market supremacy has been won indefinitely. Truly at present our competitors are largely off the market, but only temporarily. The struggle must go on continually and especially must we be fortified for those years of high production of Eastern fruits. Eastern fruit is produced on cheaper land, by cheaper labor, is packed cheaper and sold cheaper. Therein the danger lies. A discussion on British Columbia's strong hold grip is left for another article. Cheaper production is the stronghold grip of Ontario. The East and West meet in mid-prairie. But in the next five years British Columbia fruit must reach in greater quantities the two and a half million city dwellers of Ontario and Quebec, as well as the millions elsewhere where fruits meet in open competition.

The majority of the producing trees in British Columbia are under ten years of age. In many respects these orchards might be successfully compared with the newer plantings in Ontario. But trees bear profitably from three to four years younger in this province and consequently, we have taken the lead.

The outstanding feature of the British Columbia fruit industry as a whole is that the province was boomed as a fruit province, the orchards were planted as commercial orchards, the growers were, or have been developed as fruit specialists, the packing and grading have become highly specialized and the markets have been systematically developed. British Columbia is today known agriculturally as a fruit province. A Toronto daily in late October of this year, when commenting on the food situation said that British Columbia did not count in the total as she was entirely a fruit province. As fruit men we take no exception to this and are pleased to be known by our fruits—and in Toronto we are known by our fruits—but the grain and stock men might readily

take exception since the comparative production of other farm crops to fruit is about ten to one. With this difference, however, other farm products are sold at home. British Columbia fruit is sold on four continents.

British Columbia must continue her progressive development in orchard management, packing and marketing. One year, or two years at most, of neglect means injured or ruined trees. Without water in the dry belt the fruit is small, without spray and conservation of moisture elsewhere it is not merchantable, without constant and increasing care the advantage gained would quickly be lost. Already one phase of the British Columbia orchard industry has passed into history;—the boom days with its varied indiscriminate plantings. The second phase is with us;—the unpreventable waste and deterioration due to the climate and change which the tenderer varieties should not have been subjected to. The third phase is yet to come;—in a few cases it is beginning to show already, the careful filling in with hardier varieties, the working over of the poorer to choicer varieties and the slow, but certain, extension of the plantings based on the experiences of the past. The permanency of the industry, ten, twenty and thirty years hence depends on immediate reconstruction in the orchards where losses have occurred.

British Columbia's throttling grip will be discussed in another article.

SMALL FRUITS AND THEIR MARKET

(By S. J. Fee, Calgary.)

Early this season I stated in a circular to growers, that while I did not think small fruits would sell at exceptionally high prices, owing to the high price of sugar and all other staples the consumer had to buy, the demand would be very heavy, as I believed every jar, sealer and jelly glass in the country was empty, coupled with the high price of canned goods, would make a heavy demand at good prices. This proved the case. I do not know of any small fruits of which there was a sufficiency. There was a little over supply at times at some points, the result of poor distribution, and some dealers at times got more than they could successfully handle, but on the whole the supply was far short of the demand and the demand in 1918 will be greatly in excess of 1917.

It is becoming increasingly difficult to sell No. 2 grade or poor goods, people are learning that the best is the cheapest. Small, partly mature or stemy gooseberries are almost unsalable and growers shipping such are risking the loss of their crates as well as the fruit. Large clean gooseberries will sell at good prices with a greater demand than supply. Small or partly green red currants are not salable; while the large red, particularly the "Cherry" red currants have a greater demand than there is supply at good prices. Small black currants, pulled off with the stems and some leaves, people will not bother with, while the large, clean ripe will bring good prices, with demand greater than the supply. Small scrubby or

(Continued on Page 18)



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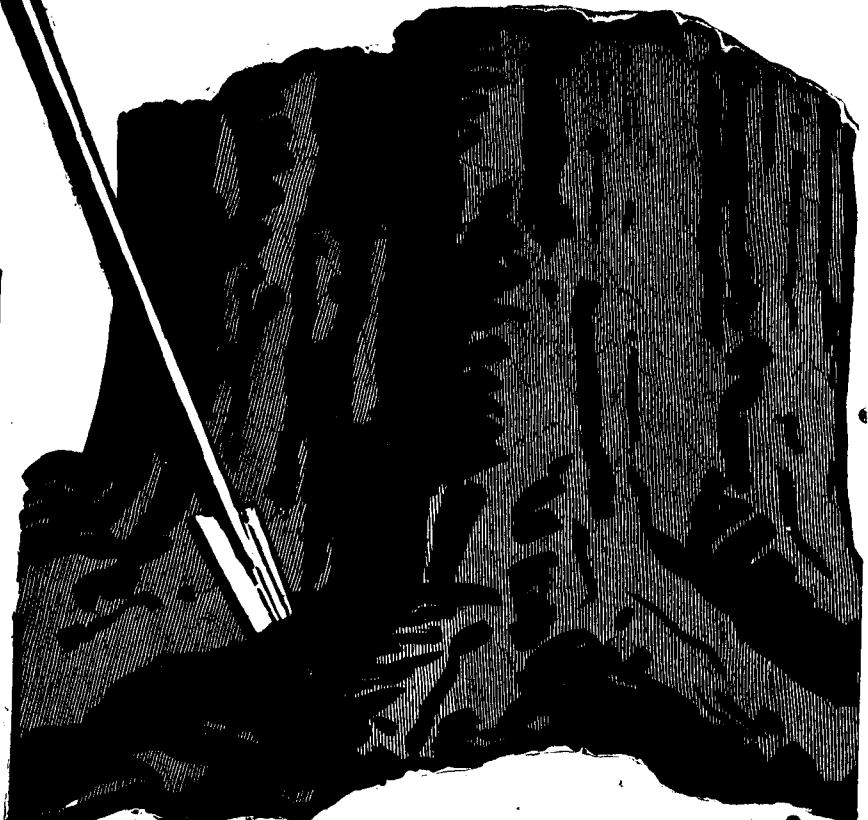
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partly green strawberries are not salable, clean, firm, well filled cups will bring good prices and the acreage can be increased to double the present, and the demand will still be greater than the supply. The same is true of raspberries, but in both cases, present distribution is in a sad state of disorganization, and without going into that, I just want to say in passing, that I am enthusiastically in favor of the mail order and direct shipping to consumers in country districts as an economical system benefitting, or should, both producer and consumer, but like all good things, can be over done to its detriment. As nearly as possible, uniform prices should be made, fair to both parties, the producer in getting these orders with money in advance, should give those orders the most careful attention, seeing that only the best goods were put in, carefully graded, honestly packed, and, if for any reasons the goods cannot be forwarded on the dates ordered, letter explaining, and when shipping should be promptly sent, also the time the shipment should reach destination, even to the train, so the goods will be cared for at once on arrival and no waste owing to laying around waiting consignee taking delivery or not being prepared to care for on arrival. The direct shipping to reliable country merchants can well be extended, benefitting producer retailers and consumer, the same care being necessary as in the other case. I am not touching on city distribution, it is too big and complex for this article.

There are no crops that should return as large a per cent. of what the consumer pays, as such small fruits as gooseberries, red and black currants, strawberries, raspberries, black raspberries and blackberries. They must come by express and the express charges are practically as high per case in car loads as single cases. They can be grown in almost every part of British Columbia, by any and every one with a small patch of ground within reach of a railway, doing practically all the work themselves with the only heavy outlay of crates. Most of us like to indulge in figures, they are impressive at times, and from my knowledge of the markets, when I say there is half a million dollars that should go to such homes for such small fruits, I am confident I am making a conservative statement. Part of this money goes out of the country, but the larger part of it is never spent for those small fruits because our people cannot get these small fruits or as much as they want.

Orchard Culture.

A peach grower claims that frequent applications of hot water to the roots of peach trees will keep the roots free from grubs. The bark just under the ground will be a greenish yellow. The soil should be dug away from the trunks, and loose soil and leaves raked up against them. These can be removed with the hands when the hot water is to be applied. The hot water stimulates the flow of sap and the trees bear better.

It is possible that the orchard might make a good pasture, but it is not advisable to make a pasture of the orchard.

During the dormant season moss can be cleaned from fruit trees by spraying with concentrated lye, using a pound to six gallons of water. This will make the bark hard and brittle, as well as give a clean bark.

Rabbits can be prevented from gnawing orchard trees, by the use of the following mixture: Take one-half gallon carbolic acid, four pounds of sulphur, two gallons

soft soap, and 32 pounds of lime. Mix the soap with enough water to slack the lime, then while hot mix in the sulphur and acid. If applied about the first of April, it will also act as a preventive of borers.

A wound made by cutting off a limb close to the trunk of the tree will soon heal over, but a wound made by cutting off the limb two or three inches from the trunk will lead to decay and often causes the death of the tree.

Disease wood can never again be made new. It should be cut off and another shoot be allowed to grow. There is danger of losing a tree by allowing diseased wood to remain on it.

For covering cuts on trees, use the following mixture: Melt resin and warm a little crude petroleum in separate vessels, pouring into a third vessel three parts resin to one of petroleum. This will seal the wound until grown over. The mixture will not run in warm weather, nor will it crack in cold.

An old fruit grower uses a pick in the orchard, and deems it his best tool. When the ground around the apple trees is hard, he sinks the pick eight or ten inches into the soil and merely pries the dirt loose, without disturbing the roots at all.

One of the most ingenious ways of furnishing protection to peach buds has been tried by Professor Whitten, of the Missouri Experiment Station, who worked on the well known principle that dark colors absorb more heat than lighter ones. He found that light colored peach twigs were slower about starting into growth and conceived the idea of spraying peach trees with lime wash to prevent their starting on mild days in winter. He claims to have been very successful in this practise.

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This Loan is authorized under Act of the Parliament of Canada, and both principal and interest are a charge upon the Consolidated Revenue Fund.

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Cows and the Dairy

In a year a 1,000 pound cow will consume about two tons of hay, and one ton of feed, besides pasture.

A cow requires about eight gallons of water a day. Milk is about 87 per cent. water.

A heifer is apt to give more milk with the second calf.

It is not profitable to keep a fat dairy cow. The cow with a good appetite that eats heartily and yet keeps thin in flesh, while giving milk is the one to keep.

As the dairy cow must produce both heat and energy, she requires five times the amount of carbon in her food as of protein.

The cattle should be kept out of wet, miry pastures. The march pastures had better be reserved for later in the season, and the cattle kept on high land at this time. Do not allow stagnant pools of water about the place, as impure water is unfit to drink.

Never feed dry, musty fodder just before milking. If dusty, sprinkle before feeding.

Where the herd is known to be sound, every precaution must be taken before adding new animals. The latter should be tested for tuberculosis, and the entire herd gone over by a veterinary surgeon at least twice a year.

There is a reason for the kicking cow. The habit can frequently be cured by removing the cause. It may be a sore, or a swelling, or it may be caused by long finger nails, or, possibly, some previous injury or pain that makes the cow so afraid and nervous that she cannot resist the inclination to kick.

The cow should be fed all the hay or other roughness she will eat even when on pasture.

It has been shown by experiment that cows fed on ensilage in connection with other feeds will produce more than 50 per cent. more butter than equally as good cows fed on other good feeds of the same cost.

The stomach of the young calf is very delicate, hence changes in feeding must be made slowly. The calf will begin to eat grain and hay when it is about four weeks of age. Shelled corn is about the best grain feed, as it takes the place of cream in the milk.

A cow that will give a pound or more of butter a day is a good cow, and, in addition to a variety of feeds grown on the farm, she should be fed daily a small quantity of bran or cottonseed meal.

Abundance of succulent feeds containing the proper materials in right proportion for producing milk, plenty of mild water, some salt, mild temperature, and comfortable surroundings generally, are the conditions for making a dairy cow do her best.

A cow does not come to her highest and best flow of milk till about the fourth week after freshening. During these first weeks of lactation she should not be given all

she will eat, and part of the feed should be of a laxative nature. She may be placed on full feed at the end of the fourth week when the flow will be at its best.

The cow with her first calf may not come to her fullest and best flow of milk until the fifth or sixth week, owing to the fact that bringing forth young for the first time is a more severe physical strain than later in life, hence a longer time for recovery from the weakness caused by gestation will be required. For this reason the young cow coming fresh should be fed and cared for more carefully than older cows at the same period.

The calf will do much better on whole milk than on skim milk. The fat in the milk will make it fat, plump, and in fine finish for market. For this reason, the calf sold for veal should be fed more whole milk than the one kept for milk or breeding purposes. When the calf is four or five weeks old, it will eat some hay, shelled corn, and ground feeds. If these are given daily in connection with the milk diet, veal can be produced cheaply.

A cow that has not the capacity to produce milk can easily be overfed but the cow that will give a large flow of milk is the one that should have the extra feed and the one that usually does not receive enough.

To get the best results from the milk, set it as soon as possible after it is drawn, and at a temperature of 40 degrees. Churn at as low a temperature as possible, and stop the churn when the granules are the size of beans. The trade demands color in the butter, so it must be put in.

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Vol. X. DECEMBER No. 12

EDITORIAL

BREED THE SOWS

The call of the department of agriculture to the farmers of Canada to multiply their swine herds, reflects the desire of the authorities to increase productiveness in those quarters where action can be quick and returns correspondingly prompt. This applies to both sheep and pigs, but in the case of hogs the product is so readily preserved, is so economically transported and is so welcome on the firing line that it has been thought well to stress this particular side of our agricultural expansion at the present time.

There is, too, an assurance regarding the price of hogs which is not present in other lines. Sheep breeding offers a very attractive field and at present prices should prove very remunerative. But there are elements of risk in the case of sheep which do not exist with respect to swine. One of the largest traders of New Zealand in conversation with the editor recently stated that there were in cold storage plants of Australasia at the present time over four million mutton carcasses awaiting shipment. These already tax the capacity of the plants of the Antipodes and this season's yield aggravates a situation already grave. An abattoir authority from the prairies informs us that the packing houses of the States are also holding big reserve stocks and that in some of the Southern American countries there is a limited duplication of the Australian situation.

With regard to hogs the supply seems never to equal the demand, the turnover is comparatively quick and there is consequently an opportunity for the man of limited means to heed the government's advice with a minimum of risk and a modest investment.

"Breed every sow" should be the slogan throughout the whole of North America until the war is won.

A CREDITABLE SHOWING

An increase of about three millions in the agricultural production of the province is predicted by the deputy minister. If his hopes are realized the total will this year be in the neighborhood of \$35,000,000.

The good prices which have prevailed are largely responsible for this showing, as the shortage of men had its effect in reducing the acreage. The value of the yield of last year was \$32,182,015.

TIES TO THE LAND

The war, while it has taken its toll of the men from the farms, has also brought to the tiller of the soil prices which were undreamed of before the outbreak in Europe. As a result the farmer is often now described as a profiteer because he receives prices of a kind that seem to provide a handsome profit.

The average man who makes such a charge does not understand and has perhaps no means of learning how costly is now the process of producing returns from the fields. The shortage of labor and its high wages are only two factors in the ever increasing costs of production.

We are not referring to this subject, however, for the purpose of emphasizing that phase of it, but rather a more agreeable aspect, reassuring both to the man on the land and to the city dweller. It is perhaps most noticeable on the prairies where this season a minimum net price of \$2 a bushel for wheat was obtained and where in some instances men realized enough from their crop to pay the whole original price of the land.

The effect of this has been to give the farmer of the prairie a new and permanent interest in his broad acres. The prairie rancher has often been described as a miner, engaged in digging out of the soil and capitalizing much of the fertility stored there by centuries of sun and

FOURTEENTH ANNUAL SALE

Fine Gifts of Use and Beauty

During the last two holiday seasons Silks in blouse and dress lengths have been given by hundreds of people, instead of less useful things.

Already we have wrapped and mailed nearly a hundred such gifts to the Old Country, and have sent away to purchasers in different parts of Canada.

Prices on all silks are reduced.

Samples will be sent with sale prices on any silk in the store upon request.

All silks sent postage prepaid.

PADDED SILK KIMONAS

Many will appreciate a soft, warm, padded Silk Kimona or Jacket. They're most comfortable to wear and weigh very little; any color.

\$1.25	Sleeveless Hug-Me-Tights	95c
\$1.45	Sleeveless Hug-Me-Tights	\$1.25
\$2.25	Hug-Me-Tights, with sleeves	\$1.95
\$3.50	Plain Padded Jackets	\$2.75
\$5.00	Embroidered Padded Jackets	\$3.98
\$7.50	Plain Padded Silk Gown	\$5.45
\$9.50	Embroidered Padded Silk Gown ...	\$8.45

SILK SCARFS

All Knitted Silk Scarfs are on sale at 20 per cent off the regular prices. They come in a very wide variety of Roman stripes and any plain you may want.

Reg. \$1.25 to \$5.50. Sale price **\$1.00 to \$4.40**

MADEIRA WORK

We import Madeira Work direct from the hands of the women who do the work. No one can sell you the same grade as cheaply as we do. Now it is reduced 20 per cent—Doylies, lunch cloths, centre pieces, runners, luncheon sets, napkins, handkerchiefs and many other novelty pieces. Complete list sent upon request.

Reg. \$30.00 to \$40.00. Sale **\$24.00 to \$32.00**

BLOUSE SALE

Any blouse in the store may be had for 20 per cent off the regular price. They are regularly sold from \$3.50 to \$12.50. Sale prices from **\$2.75 to \$10**—They include every good material and style and all the new shades. — Please write for suggestions.

BLOUSE SPECIAL

A very fine high grade of Crepe de Chine is used in this blouse. It is made with a deep collar and neat cuffs. Some have a small hand-embroidered design on the collar points in the back and on either side of the front. Others are plain. Comes in any color or size.

Regular \$6.50.

Holiday Sale Price \$4.98

Sent Postpaid anywhere; money refunded if not satisfactory in every way.

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SILK SPECIALISTS

shower. He resembled the miner in another particular inasmuch as he seemed to take little interest in making his home or his surroundings attractive, being content as so many miners are, to move on when tired of his location or when he has achieved a sufficient "stake."

This has changed rapidly in the last year or two. "The most significant thing to me," said Mr. Roderick Mackenzie of the Grain Growers' Association, to the writer while travelling across the prairies a few weeks ago, "is the amount of summer fallow now being cultivated and the new interest the farmer takes in his home. In some cases gasoline engines are providing electric light for the lonely homestead and in others the most modern sanitary appliances are replacing the old and primitive arrangements which did so much to make farm life distasteful.

All this spells a new interest in the land—an interest based on profits, but nevertheless making for permanency in the farm life of the prairie.

What is true of the middle west has long been true of B. C., where the average country home is probably as "homey" and comfortable as any farm establishment anywhere.

F. M. CLEMENT, PROFESSOR OF HORTICULTURE, U. OF B. C., APPOINTED SECRETARY OF FRUIT GROWERS' ASSOCIATION

The Fruit Growers' Association of British Columbia is to be congratulated on the acceptance of the secretaryship of their association by Mr. F. M. Clement, Profes-

sor of Horticulture, University of British Columbia.

Mr. Clement was formerly in charge of the Elgin Branch of the Department of Agriculture in Dutton, and was for a number of years director of the horticultural experiment station at Vineland, in the Niagara Peninsula. His training has been thorough, and under his direction the co-operative work and marketing conditions of the neighborhood have been revolutionized.

Mr. Clement was brought up on a farm in the Township of Niagara, where he became acquainted with the practical aspects of the fruit growing from boyhood. He graduated from the Ontario Agricultural College at Guelph in 1911, and during his vacation periods he did practical work on fruit farms, and towards the end of his training at Guelph completed the orchard survey work in the Niagara Peninsula for the Ontario Department of Agriculture.

Immediately after his graduation he was appointed district representative for Elgin County, his office being located at Dutton. Under the regulations then in force in addition to his other duties, he had secondary work in agriculture a few hours each week in the high school. His other work included a large amount of demonstration work throughout the county.

In the autumn of 1912 he was appointed as lecturer in horticulture in Macdonald College, and during a large part of that year had charge of the department.

His work has been varied and he has published numerous reports and bulletins, including the "Orchard Survey," "Peach Growing in Ontario," "Strawberry Culture in Ontario," "Plum Culture in Ontario," which work was undertaken while he was

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Freight Charges:

\$1.30 per ton Lulu Island District; \$1.00 per ton Delta District; prevailing charges to all other localities.

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SOLDIERS' COMFORTS

It is time to think of the Christmas parcel to the boys at the front.

- Warm Trench Sweaters.
- Wool Helmet Caps.
- Warm Gloves and Mitts.
- Warm Sox.
- Body Belts.
- Money Belts, etc.

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OVERCOATS from the best English and Canadian makers **\$25 to \$40**

HATS; smart styles in Borsalino, Stetson, Scott and Christie makes, from **\$2.50** to **\$6.00**

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Jaeger, Arrow and Imported English makes. Prices from **\$1.25** to **\$8.50**

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still a member of the staff of Macdonald College.

Ontario's loss is British Columbia's gain, as from the foregoing it may readily be seen that Mr. Clement has an intimate knowledge of every phase of fruit growing, practical, commercial and scientific. But still other factors have entered into his success as director. He has a quality that is sometimes termed "pleasing personality," has the art of making friends easily and the character and knowledge to inspire confidence. He is fluent on the platform and convincing with the pen, and has, moreover, the tools with which public opinion is fashioned ever at his command.

The Fruit and Farm Magazine congratulates the fruit growers of this province on having so able and experienced a man as Mr. Clement as secretary, and the fruit growing industry will benefit greatly by his scientific and practical knowledge, and we wish Mr. Clement every success in his new appointment.

GOOD INCREASE IN PROVINCIAL FARM PRODUCTION FOR 1917.

Agricultural production in British Columbia, which reached \$32,182,915 in 1916, may amount to \$35,000,000 this year, if the hopes of department officials are realized. It is regarded as certain that fruits will show an increase not only in quantity but in market value while field crop products, although showing a falling-off in quantity, have brought better returns than last season. Dairy products fell off in quantity

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Advice Free.



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but went up in price. Livestock figures are encouraging.

The total of over \$32,000,000 reached last year was derived from: Livestock, \$8,703,136; meats, \$1,405,872; poultry and eggs, \$2,324,307; dairy products, \$3,251,856; fruits, \$2,176,662; vegetables, \$8,374,517; fodders, \$5,741,979; grains, \$3,294,013; honey, hops and nursery stock, \$356,492; Indian farms, \$1,554,081.

"Give us men we can double the crop production in a year," said Deputy Minister Scott. "With the absence of thousands of soldiers," he said, "it was absolutely impossible to increase appreciably the soil crops."

Soil Conditions.

Referring to soil crop conditions during the past season, he pointed out that there was a slight falling off due to a hot dry spell in the southern part of the province in July. It cut down the grain crop to a marked extent. Northern British Columbia, however, produced a fine crop this year as contrasted with a failure last season. The lower mainland and Vancouver Island were slightly below normal in quantity of production. The value of the crops throughout the province will be about the same as last year.

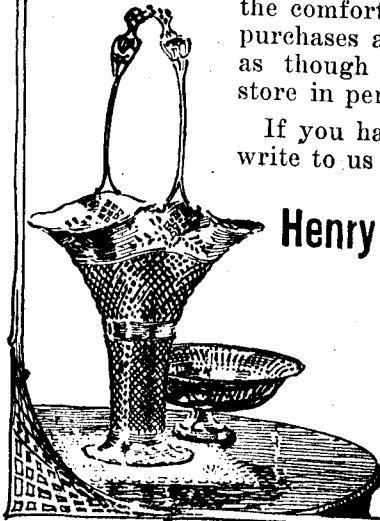
The deputy minister considers the 1917 fruit crop a good one throughout the province. The quality of the fruit was splendid and the prices better than for some years past. Growers had no trouble selling, and where co-operative endeavor was relied on, they obtained satisfactory returns. There was little or no wastage, even the windfalls being disposed of. A considerable quantity of fruit was used for cider and pulp and also in evaporators and canneries. The Okanagan gave an increased production, although other districts were somewhat less than last year. Taking the province as a whole the production was about the same as in 1916.

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1000 MEN'S AND YOUNG MEN'S OVERCOATS—In fact, the most complete range in Western Canada. Every style and size in this wonderful stock. The cloth in these coats was contracted for a year ago in England. Overcoats guaranteed to give entire satisfaction. Sizes are from 32 to 44. Prices at **\$15, \$18, \$20 and \$25**

5000 MEN'S AND YOUNG MEN'S SUITS—In styles you like and prices you want to pay.
Prices **\$15, \$18, \$20, \$25 and \$30**

—See our SPECIAL NAVY BLUE SUITS—Guaranteed to fit. Special price **\$20**

CHRISTMAS NECKWEAR in novelty boxes. The most complete range we have ever shown in prices from **50¢, 75¢, \$1.00, \$1.25 and \$1.50**

CHRISTMAS BRACES—A pair from..... **50¢ to \$2.50**

GLOVES in all of the best English makes. Prices from **\$1.00 to \$5.00**

FANCY UMBRELLAS—Prices from **\$1.60 to \$10.00**

Our Slogan is: "Your Money's Worth or Your Money Back."

William Dick, Ltd.

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33, 47 and 49 Hastings Street East

but it is believed that prices were about 20 per cent. better.

Increased Acreage.

Official bulletins just issued by the department give the following summary:

Notwithstanding the slight increase in the total areas of grains in 1917 over 1916, the total yield shows a decrease, due to unfavorable climatic conditions. The decrease in oats, the chief grain crop, was 19.2 per cent.

Hay and clover yields were good, being 12.6 per cent. greater than 1916. Alfalfa, while promising well at first cutting, was later affected by drought, yet the average of all cutting was 12.9 per cent. greater than 1916.

Field roots, according to the 1917 returns, show an increase in area of 58.1 per cent. over the previous year. These crops, however, got a poor start in the spring and drought retarded growth, so that unless exceptional growth is made during the later months, the average yield will not be up to standard. Beans, while comprising a comparatively small percentage of the total area of crops, are nevertheless an important crop owing to the high price obtaining in 1917, this being about \$6.75 per bushel as against \$3.90 in 1916. The acreage is estimated to be 20.9 per cent. greater than 1916 and the average yield provisionally estimated to be 41.9 per cent. less.

Potatoes show about a 10 per cent. increase over last year.

The present year's fruit crop of the province has probably been the most satisfactory in the history of the industry, for not only are the yields of tree fruits provisionally estimated to be equal to 1916, but prices to growers as well reached a new high mark. The quality, aside from being a little undersized, was excellent, being highly colored and free from blemishes, the latter conditions being due to the comparative freedom of orchards from insect pests and diseases. Stone fruits were in good demand at high prices.

Notwithstanding some apprehension among growers as to the effect of the overseas embargo, the entire crop was disposed of earlier than average.

Got Higher Prices.

Viewing the crop situation as a whole, while the late wet spring and subsequent drought held down yields of grains and vegetables, yet prices realized by the growers have been high enough to well offset decreased production, so that the total value will undoubtedly be greater than 1916. The cost of farm operation has, however, been very high. Labor has not only been very scarce during harvest periods, but wages demanded by all classes were high. The cost of both human and animal food commodities, where it was necessary to procure these off the farm, has greatly increased, so that notwithstanding high prices secured for farm products, the cost of operation has limited the margin of profit.

The livestock industry generally may be described as satisfactory. The demand for horses has been brisk at good prices, while breeding of this stock has been satisfactory.

Beef cattle were maturing well during the earlier part of the year, but subsequent drought dried pastures making it difficult to maintain this condition.

Sheep have given satisfactory returns, prices of the meat and wool being good.

Increase in Hogs.

There has been a marked increase in the hog industry in 1917 and pork prices have been good.

The poultry industry continues to feel the burden of high prices of feed, resulting in

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Shipped by express, the cost
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Clothes for Boys

This store is stocked with clothes and furnishings
for boys, and nothing else.

I aim to give a service which will make it pay
you to do business here.

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Boys' Clothes Specialist

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about 10 per cent. of the laying stock being sold off and a corresponding decrease in egg production. The number of young birds has been fairly well maintained, however.

Prices of poultry have not been as good as they might have been, had better marketing distribution been possible.

Dairying remains about as last year. Drought caused from five to ten per cent. reduction in butter manufactured. In some sections, high feed prices are causing herds to change hands. The price of butter fat has, however, been such as to offset any decrease in quantity.

NEW COMPANY INCORPORATED TO SELL DAIRY MACHINERY AND SUPPLIES

A new company has been formed and will be known as the Dairy Machinery Company, Limited, with offices at 1128 Homer Street, Vancouver, their business being that of handling all kinds of Dairy Machinery and Supplies, and they will act as exclusive agents for "EMPIRE" products, including the celebrated "Empire Milking Machines," "Empire Cream Separators," "Empire Gasoline Engines," "Empire Electric Lighting Plants;" also B. & K. Sterilizing Solution.

The manager of the company will be Mr. C. L. Merritt who is well and favorably known throughout British Columbia.

SAVING THE POTATO CROP

By M. S. Middleton, Provincial Horticulturist and Inspector of Fruit Pests, Victoria, B. C.

Due to car and labor shortage in the province this fall, a large part of this year's potato crop will be stored in various ways by the growers. In the past there has been considerable wastage in stored potatoes from several causes or conditions. With this in view, a few timely remarks on proper storage and storage treatment will not be amiss.

The importance of the potato crop at this time as a food need only be mentioned. When potatoes were plentiful and cheap, careful storage was not given serious consideration; a certain loss seemed to be considered natural. The losses can be prevented or, at least, greatly decreased by care in storage.

Successful storage depends on:

- (1) The quality of the tuber stored, which might be divided into:
 - (a) Maturity;
 - (b) Freedom from disease;
 - (c) Freedom from cuts and bruises;
 - (d) Dryness of tubers stored;
- (2) Temperature at which tubers are held;
- (3) Size of pile;
- (4) Ventilation of pit or storage;
- (5) Exclusion of light.

The quality of the tuber stored is very important to success. Immature tubers will not store well, and should only be kept in small lots. Blight affected tubers, or those from a field which has shown blight should not be stored, or if stored, they should be in small lots or crates so that they can be gone over frequently and decayed or decaying tubers removed; this is a bacterial disease and will develop in storage. Cut, broken or bruised tubers are better kept out of pits or storages because their moist condition is always apt to encourage development of rots and molds, which not only destroy the injured tuber but several of their neighbors. The drier the potatoes are stored the better they will keep; potatoes which have been stored wet and dirty are always a source of disappointment, due to the favorable

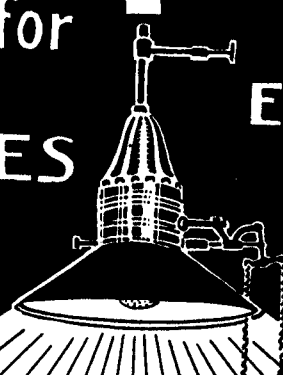
conditions for the development of rots. If the tubers have been dug during wet weather, they should be allowed to dry before pitting or storing.


The temperature in a pit or storage should be fairly low, between 36 degrees and 40 degrees F. are considered best. At these temperatures the tubers are kept about as near their original soil conditions as possible, so that they will not be apt to sprout and will remain firm and free from attacks of disease. The freezing point for potatoes is between 26 degrees and 28 degrees F., and if once touched by frost they turn sweet and cook soggy. Frozen potatoes cannot be brought back to normal again, as can be accomplished with fruits by careful thawing out.

The size of the pile in the pits or stor-

age cellars has a great deal to do with the successful storage; small piles or lots will keep much the best. It is better to make long narrow pits rather than wide, deep ones; excavations for pits should not be more than 12 to 18 inches, four to five feet should be the maximum width, and the potatoes piled to a natural peak. Storages should be divided off into small apartments or the potatoes stored in open crates.

Proper ventilation is possibly the most important of all factors in successful storage. If the ventilation is faulty, the piles will sweat, heat and generally rot and sprout. Many are afraid to allow cold air to circulate, thinking it will freeze the tubers; if sufficient air is allowed to enter the pits or storage cellars to keep the potatoes dry, there is less danger from



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freezing. Frost is always attracted by moist conditions. Slatted raised floors and slatted sides to storages, and placing of straw or other loose porous material in the bottoms and sides of pits, with air shafts of a slatted sort at intervals of six to eight feet, will allow good ventilation. These air shafts should be opened and closed somewhat depending on the severity of the weather. The ventilators are usually stuffed with hay during coldest weather.

Dark conditions in storages are also essential to good storage, thus preventing sprouting and discoloration.

Pits should be watched throughout the winter and more covering of straw or manure given as the weather becomes more severe.

Proper storage might be summed up as follows:

(1) Store only well ripened, dry, uninjured tubers that are free from bacterial disease.

(2) Store in a dry, cool, well ventilated place.

(3) Temperature should not range above 45 degrees or below 33 degrees F.

(4) Pit in narrow pits or in small bins with plenty of air shafts, or in open crates in cellars.

(5) Potatoes should be gone over in the spring when they start to sprout, removing the sprout and at the same time the decayed tubers.

THE FUTURE OF B. C. SPUDS IN EASTERN MARKETS

(By S. J. Fee, Calgary.)

Possibly the greatest efforts to make a success of growing Alberta potatoes were made in 1917, every effort that could be made by Vacant Lot Garden Clubs, Civic bodies and public men of influence to make popular and patriotic the growing of potatoes, was made, with the result of the heaviest planting known. The season for some large districts was unfavorable and very poor crops were the result. Then a splendid fall with a sudden storm and cold snap, froze large acreages in the ground, and many farmers being too busy with more important crops, neglected, or were forced to neglect, digging in time to save them. And while prices have been fairly good, there has not been a great or keen demand for Alberta potatoes, so it is very doubtful if there will be anywhere near as great an acreage planted in 1918.

Our public has cheerfully paid a greater marginal difference for British Columbia's over Alberta's than we have ever known at any times, paying \$1.50 per bushel for British Columbia's as against \$1.00 for Alberta's, even better class restaurants buying British Columbia's and paying the much higher price.

While I do not want to appear as disparaging Alberta potatoes, there is no question of doubt that the market for British Columbia's in Calgary and directly eastward is rapidly extending and it only remains for British Columbia potato growers to see that only No. 1 grades are shipped and they are assured of a large and increasing market at good prices.

FOR SALE

Jersey Bull, 5 years old, quiet, solid color, black tongue and switch. A number of his half-sisters have made excellent records in the R. O. P. tests. For particulars apply

GRIMMER BROS.

Port Washington, B. C.

British Columbia Manufacturing Company, Ltd.

Manufacturers of

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CRATES

VENEER

If you wish to eliminate that sawdust nuisance use our Standard Rotary Cut Berry Crates.

No order too large, no order too small to receive our prompt and careful attention. Write for Prices.

B. C. Manufacturing Co., Ltd.

NEW WESTMINSTER, B. C.



Bring Cheer
To Your Home at
Christmas
and all Through the New Year with a

Victrola

Now is the time to order, and thereby avoid the Christmas rush which each year clears out some styles entirely.

SOLD ON EASY PAYMENTS, FROM \$27.50 UP.

If you are considering the purchase of a Piano or Player Piano, be sure, in justice to yourself, that you investigate the

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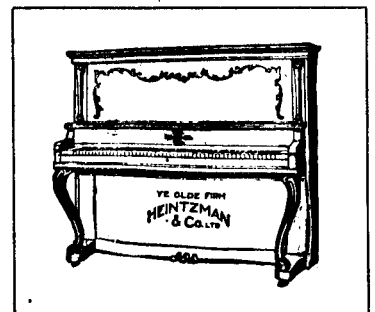
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"EVERYTHING IN MUSIC"
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Manure and Fertilizers

Wood ashes can be used for any crops that need potash, and they may be applied at the rate of 25 to 50 bushels per acre.

For cultivated crops wood ashes should be applied broadcast after the land has been harrowed and then cultivated in by a light harrowing. Wood ashes can be used also as a top dressing in connection with phosphate fertilizers.

It is claimed that an average sample of unleached wood ashes contains about seven per cent. of potash and two per cent. of phosphoric acid.

Besides the actual fertilizing value, by reason of the potash and phosphoric acid contained, there is some value to ashes simply by the power which the potash has to make the nitrogen of the soil available for plant use by its chemical action upon the organic matter and humus of the soil.

The potash in wood ashes exists in a readily soluble form, and is thus immediately available for plant food.

Coal ashes are of little value as plant food.

Manure may fail to give good results the first year and show well the next. Much depends upon the condition of the material. It cannot afford food to plants until its decomposes and is soluble material converted into plant food.

Stable manures are generally more economically used when applied to farm crops than when applied to orchards; yet they can be used with good results, particularly in rejuvenating old orchards on exhausted soil. It is claimed that fresh sawdust contains an acid which, when used heavily may injure soils which are deficient in lime.

The liquids of manure are alkaline and will neutralize the sawdust if well soaked into it.

The chemical action in the manure pile is also alkaline, so that sawdust used for bedding and well mixed with the manure is safe to use on the soil.

Horse manure contains less water than cattle manure, and as the horse has less power to digest cellulose, the manure is more fibrous.

Horse manure ferments easily, and hence is called a hot or quick manure.

In fermenting, horse manure gives off ammonia or nitrogenous products, and rapidly deteriorates in quality.

Because of the rapid fermentation of horse manure, it easily becomes dry and fires.

To prevent fire-fanging and loss through fermentation, horse manure, when in piles, should be kept very compact and moist.

Mixing horse manure with cow manure will aid in preserving it, and contribute to the value of both for general purposes.

The quality of quick fermentation and heating makes horse manure especially valuable for use in hot beds, mushroom beds, and for cold, wet soils.

Horse manure is more bulky, or weighs less per cubic foot, than cow manure.

A well fed horse will produce about 50 pound of manure per day, about one-fourth of which is urine.

Manuring Facts.

Professor E. B. Hart, of the University of Wisconsin, says farmers needs to be cautioned generally against the use of wood ashes and lime with manure. The ashes and lime produce an alkaline condition, resulting in the loss of the ammonia which carries off the nitrogen. This point has not been sufficiently emphasized, and many well-meaning farmers have used ashes and lime with manure to disadvantage. The lime and ashes if needed by the soil should be put on in other years than those in which farm manure is applied.

Burberry Coats

The Warmth Without Weight
Overcoat
Rainproof, Yet Porous.



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Goat Breeding Industry in British Columbia

By George Pilmer, Secretary B. C. Goat Breeders' Association and Canadian Goat Society.

The approaching close of the year makes the present a suitable time to review the development of the milk goat industry in British Columbia. During the past year a rapid advance has been made in public favor by the milk goat and its products, and it looks as if it will not be long before the industry will be firmly established and become a permanent feature of the live stock and dairying industries of the province.

When, about a year ago, a few of us thought it advisable, in view of the awakening interest in the milk goat and the increasing numbers being kept, to co-ordinate the efforts of the various breeders to place the industry on a better basis as a foundation for future development, we little thought that in the course of a single year such progress would be made. Our most sanguine expectations did not lead us to expect that more than about fifty people would join such an association, but, as more and more names kept coming in until, at the present time we have a membership of 180 in our provincial association, we came to the conclusion that our efforts were by no means premature, but rather that the time was ripe for the steps we took towards a proper organization of the goat industry.

Of course, it may be said that the novelty of the business may be responsible to some extent for the way it has taken hold of the public fancy, and that when this novelty has worn off interest will decrease. While this may be true in the case of a few, there is no doubt in the minds of those who have had experience and who take a sane and moderate view of the industry, that it will be many years yet before it reaches its point of highest devel-

opment. The demand is far in excess of the supply and will be for some time, and long after our province is supplied we will find a ready market for our surplus in other parts of the Dominion.

The growing popularity of the milk goat is based purely on recognition by the public of the fact that it is hard to beat as an economical producer of food for human consumption, and in these days of rising costs it is comforting to reflect that the goat-keeper need not worry on that account, because the goat subsists largely on brush and herbage which costs nothing, and the amount of grain fed is almost negligible. As an example of value received, take the case of a common doe I have milked this year. She came in fresh about the end of January, milking a little over a quart daily, which gradually increased to two quarts within two months. This yield was maintained till about the end of July, dropping to three pints daily in October, and now being only about a quart. Taking the average of three pints daily in October you get during the milking period, so far, of ten months, a total yield of, roughly, 450 quarts which, at the low price of 10c a quart, comes to \$45. From the beginning of April till end of August this goat picked up practically all her feed outside, tethered in the bush, and the feed fed during the other months would not amount to one dollar a month, or \$5 in all, showing a net profit over cost of feed of \$40. If one takes into account the richness of the milk, compared with the ordinary cow's milk, or the amount of butter made from this goat's milk, together with another's, it will easily be seen that that profit could well be put at a higher figure.

The above was just a common white goat, picked up by chance, and worth to-

day about \$30, but this instance will serve to show that there is good justification for much higher prices in the case of goats which have been bred for higher milk production.

To the suburban dweller and those in outlying districts the milk goat will prove of undoubted value as a producer of wholesome milk at a low cost and with little trouble, but a note of warning should be sounded for the benefit of intending purchasers. They should bear in mind that they want the goat to supply milk and, if they can not see it milked, they should be careful to deal with reputable breeders upon whose word they can rely. They should remember that, except in the case of high-class stock for breeding, the price should be based on production, and not be induced to pay high prices for worthless animals.

This year can safely be said to have been a year of achievement for the goat industry. We have interested the people and demonstrated to them the value of the goat by means of our splendid exhibit at the Vancouver Fair, by the distribution of literature and articles in the press; we have enlisted the support and received financial backing from both the Dominion and Provincial governments, we have given breeders financial encouragement, through our provincial association, to import pure-bred stock, and we have inaugurated, through the formation of the Canadian Goat Society, and with the valuable aid of the Canadian National Live Stock Records, pure-bred registry for goats in Canada. The foundations have been laid for a successful upbuilding of the industry, and there is no doubt whatever that it will progress by leaps and bounds.

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Beekeeping in British Columbia

By Williams Hugh.

THE BEEKEEPERS' ASSOCIATION OF BRITISH COLUMBIA

Clearing land of stumps, and building a home at Cloverdale, will, I hope, be sufficient excuse for my absence from this page during the past two months.

Library.

The association is now in a position to lend some of the best books on bee culture to its members, the nucleus of a library is in the keeping of Mr. Geo. Coe, of 120 Hastings Street, Vancouver, he will loan books for two weeks subject to renewal, the association will pay postage one way, and the borrowing member is expected to pay the return postage.

Social Evenings.

It is proposed to hold social evenings during the winter in the rooms of the Exhibition Association, Loo Building, Vancouver. The first will be held Saturday, December 8th, at 7:30 p.m. Members will have an opportunity of becoming acquainted with others and talk over their past experiences. Short addresses will also be delivered. Our country members are entitled to addresses on beekeeping, will some one arrange to procure a hall, and then we can send one of our members to deliver the lecture.

One Association for British Columbia.

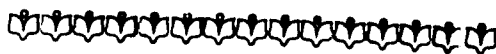
Progress has been made in the direction of uniting the Kootenay Association with this association, and forming branches for Vancouver Island and Okanagan. Directors of both have held meetings and favorably considered the question, and it will be placed before the members at the annual meeting for ratification. All branches will have full local autonomy, and matters affecting the whole province will be considered by a committee composed of delegates from each district. Fruit and Farm Magazine will be the means of giving information from all quarters of the province on bee craft. Victoria and Vancouver Island will then have an opportunity of receiving more instruction and field days can be better arranged. Members at a recent meeting in the Capital City told me candidly they had not had a square deal, and they hoped there would be a change, both during the winter and summer, in regard to apicultural instruction.

Surrey Fair.

The fair held at Surrey Centre, October 3rd, had a fine display of honey, which came in for a large share of admiration from the visitors. One of our young members, Wm. Johnson, of Sullivan, won two firsts for honey and one for wax. The honey showed 82 per cent. solids, was very clear and well put up. Bevan Hugh procured one first and three seconds. The small grant made by our directors to the Surrey Association was evidently an incentive to many to exhibit. W. H. Lewis and Mr. C. A. Carncross acted as judges. While on the subject of putting up honey, is there no way of telling or showing the persons who sell honey in the Westminster market how to put up honey in such a way as to show it is fit for human consumption? I saw sections offered for sale recently that were fit subjects for the incinerator.

Advance in Price of Honey.

Bees do not strike for more pay, and they are just as busy; why should I pay more for your honey? asked a grocer who was not quite as simple as his question. Here is a man who sells his commodities to the beekeeper in question at an advance of from 25 to 100 per cent. on pre war prices, and he fails to see why the beekeepers should advance the price of honey to the grocer. Honey jars are scarce, and in sympathy with all glassware, have advanced in prices, and with little prospect of procuring any for next year's crop. Foundation has advanced from 10 cents to 20 cents per pound over last year's prices. All appliances have increased in price and the labor attendant on



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the production of honey and its distribution costs more to sustain. The wonder is that British Columbia honey is not selling all over the province at 40 cents per pound, as it is in some places, instead of only 30 cents per pound.

Foul Brood.

European foul brood is now on the Lower Mainland, we have had American foul brood for some years, but the first named disease was discovered through the vigilance of one of our old time bee men, who sent the cause of his suspicion to Washington for diagnosis. It is just as well we know what we have in the shape of brood disease of bees in our midst, so that beekeepers can be on the lookout, and when discovered in the incipient stage can take effective measures to control or clean up by the so-called "heroic" method. Beekeepers have had their bees destroyed by fire during the past six years, whenever they had a case or a supposed case of A.F.B., and we have in that time been told "no foul brood exists in British Columbia." Now we are told, "using the most drastic measures we cannot expect to stamp out foul brood in less than three seasons." so we are to go on during the next three seasons with the same methods that fail to retard or control foul brood. In this magazine, January, 1916, I wrote: "Beekeepers will be quite safe in assuming wherever they find a colony with any disease peculiar to the brood of bees, that the disease is spread over a larger area than their own particular apiary and the mere destruction of an affected colony by fire does not mean you have got rid of the trouble." I propose discussing the whole question in these columns, showing the authorities who advocate the control of European and American foul brood, and the methods employed, this will give every beekeeper an opportunity to air their own particular views. The only data I have been able to collect in regard to the location of foul brood in British Columbia has been through the reports issued by the Department of Agriculture and the American Bee Journal, all rather vague. I hope the directors will take this question up in all seriousness and handle the question in a manner worthy of their profession, and let the beginner know and realize that beekeeping is a science, backed by the leading scientific beekeepers of the world and that disease of brood can be controlled and brought within bounds.

John Brooks, of 654 Twenty-fourth Avenue, Vancouver, B. C., has been appointed assistant secretary. Mr. Brooks will send out notices of all meetings and keep the register of membership until the annual meeting.

Wintering.

The all important question of wintering bees is again interesting the beekeeper, especially the advancing army of beginners, and if they are to profit through others failures they must study the conditions responsible for the loss of so many bees during winter and the long drawn out spring. If colonies are fairly strong, with a sufficiency of stores well protected from wintry winds and penetrating rains, I see no reason why bees on the Lower Mainland and Vancouver Island should not survive the winter. I have brought a fair sized colony through a winter with nothing but a slab of soft candy on top of the frames, and commenced feeding syrup during February and had a strong colony ready for the honey flow, but the next winter being more severe, put an end to my soft candy experiment and my bees. It is, however, better to give soft candy when it is necessary to supply bees with stores late in the season than feeding syrup; this can easily be placed on the top of

frames, even when the season is well advanced. In speaking on the question of stores, my attention was drawn by Mr. Rant to the necessity of noting the condition of colonies that had already been put down for the winter, owing to the exceedingly mild weather we are now experiencing. The bees will, under the present abnormal conditions, consume a much larger proportion of stores than they would had the weather been colder, the point should be noted, and in the event of it being necessary to supply candy, the following is recommended: Soft candy for bees. Use an enamelled iron sauce pan, one pint of water, allow it to boil, then gradually stir in six pounds of granulated sugar, set the pan back from the fire box and as the sugar gradually melts give an



Bees Swarm on an Old Office Stool in Vancouver West End Garden.

occasional stir until it is quite dissolved, then add a half-teaspoonful of cream of tartar and place the pan on a brisk fire and let the mixture boil for ten minutes, then drop a little on a plate, if the sugar does not stick to the finger when pressed into it and withdrawn, it is boiled enough, but if sticky it must be boiled a little longer to evaporate the excess of moisture. When the proper condition is reached, remove the pan from the fire, during the cooling, do not stir while hot. When cooled down so that the finger may be kept in it without scalding, begin to stir and continue without ceasing until the mixture stiffens and begins to turn white like thick paste, then before it gets too stiff to run freely, pour into suitable moulds or boxes and allow to cool. Well made candy, though soft as to be easily cut with a knife, sets firm and stiff, with a smooth grain. The foregoing formula is taken from the British Beekeeper. I have found it very reliable.

GOOD BEE SEASON

150 Tons of Honey Are Gathered in Provincial Apiaries.

British Columbia bees have established the best record in ten years in the production of honey according to F. Dundas Todd,

the expert who reports annually upon the conditions of the industry in the Lower Mainland, the chief producing section of the province. The output this year was 150 tons. Most sales in bulk have been at 20 cents per pound and the outlook is for still higher figures, as the United States estimates indicate only half a crop in that country. This year's product on the Lower Mainland is light and of fine quality, the highest figures reported being 266 and 264 pounds of honey from one hive.—The Province, Vancouver.

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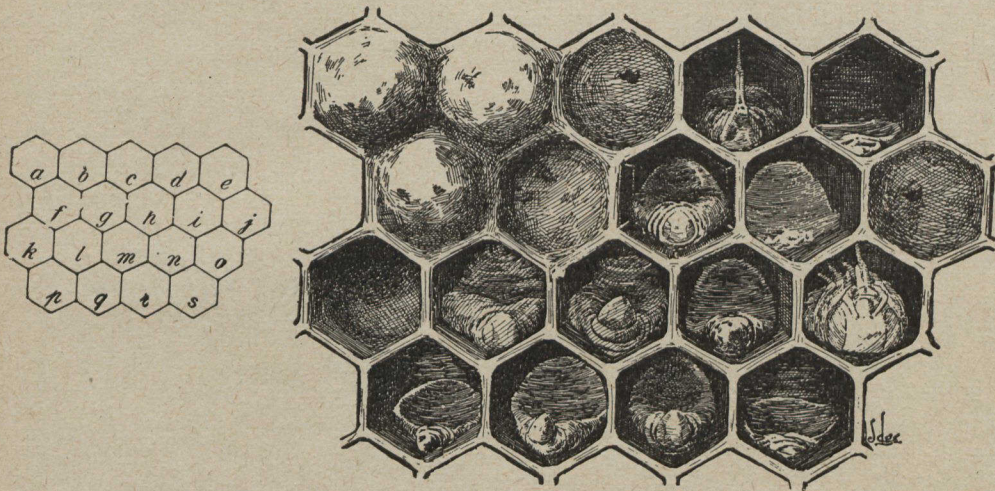
AMERICAN FOWL BROOD

In view of the present position of the diseases affecting the brood of bees on the Lower Mainland, I propose setting before beekeepers a brief outline of the several symptoms that may assist them in coping with the trouble in the early stages, and later give an account of the means of control used by the vast majority of beekeepers throughout the world. I do not think I can do better than quote Dr. E. F. Phillips, in charge of bee culture at Washington, D. C., whose concise and lucid descriptions of the several diseases have been

the posterior end lies against the bottom of the cell. Frequently the segmentation of the larva is clearly marked. By the time it has dried down and has become quite dark brown (coffee colored) the most typical characteristic of this disease manifests itself. If a match, stick or toothpick is inserted into the decaying mass and withdrawn the larvae remains adhere to it and are drawn out in a thread (fig. 2), which sometimes extends for several inches before breaking. This ropiness is the chief characteristic used by the beekeeper in diagnosing this disease. The larva continues to dry down and gradually loses its ropiness

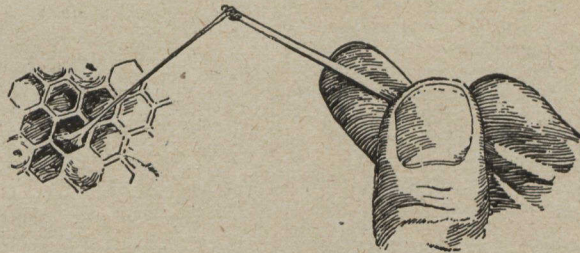
has dried down to a scale. Younger unsealed larvae are sometimes affected. Usually the disease attacks only worker brood, but occasionally cases are found in which queen and drone brood are diseased. It is not certain that race of bees, season or climate have any effect on the virulence of this disease, except that in warmer climates, where the breeding season is longer, the rapidity of devastation is more marked."

In my next notes I will give a short resume of the several methods of control of this particular disease.



No. 1—American foul brood, a, b, f, normal sealed cells; c, j, sunken cappings, showing perforations; g, sunken cappings not perforated; h, l, m, n, q, r, larvae af-

ected by disease; e, i, p, s, scales formed from dried-down larvae; d, o, pupae affected by disease. Three times natural size. From Dr. Phillips, Bulletin No. 442.



No. 2—The ropiness of American foul brood. From Dr. Phillips, Bulletin No. 442.

quoted by the leading authorities, and mentioned in every bulletin issued by the local governments of the Dominion and of the United States on the subject of agriculture. Dr. Phillips states in Bulletin 442:

Symptoms.

"The presence of a particular disease in a colony of bees can be ascertained most reliably by a bacteriological examination, since the symptoms are somewhat variable. It is possible, however, to describe the usual manifestations of the disease, and the usual differences, so that the beekeeper can in most cases tell which disease is present.

"American fowl brood is frequently called simply 'foul brood.' It usually shows itself in the larva just about the time that the larva fills the cell and after it has ceased feeding and has begun pupation.

"At this time it is sealed over in the comb (fig. 1, a, b, f). The first indication of the infection is a slight brownish discoloration and the loss of the well-rounded appearance of the normal larva (fig. 1, e). At this stage the disease is not usually recognized by the beekeeper. The larva gradually sinks down in the cell and becomes darker in color (fig. 1, h, m), and

until it finally becomes merely a scale on the lower side wall and base of the cell (fig. 1, e, p, s). The scale formed by the dried down larva adheres tightly to the cell and can be removed with difficulty from the cell wall. The scales can best be observed when the comb is held with the top inclined toward the observer so that a bright light strikes the lower side wall.

"A very characteristic and usually penetrating odor is often noticeable in the decaying larvae. This can perhaps best be likened to the odor of heated glue. The majority of the larvae which die of this disease are attacked after being sealed in the cells. The cappings are often entirely removed by the bees, but when they are left they usually become sunken (fig. 1, g, c, j), and frequently perforated (fig. 1, c, j). As the healthy brood emerges the comb shows the scattered sunken cappings covering dead larvae, giving it a characteristic appearance.

"Pupae also may die of this disease, in which case they, too, dry down (fig. 1, o, d), become ropy, and have the characteristic odor and color. The tongue frequently adheres to the upper side wall and often remains there even after the pupa

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THE CAUCASIAN BEE

By John Brooks.

The Caucasian bee is a native of Southern Russia and has only been introduced on this continent in comparatively recent years.

In appearance it is very much like the ordinary black bee, and it is very difficult to distinguish them apart, in fact they are hard to distinguish when side by side. Only when on the wing does one notice a marked difference, the Caucasians appearing quite blue grey. The writer attributes this to the color of the wing tissue more than to the fuzz on the body, for as bees grow old the tiny hairs disappear from the head and body of the bee, but old and young Caucasians show this blue grey color when flying. Even when the strain is crossed slightly one can still notice this peculiar color when the bees are in flight.

Although they resemble the blacks to a large extent in build and appearance, there is no comparison whatever when disposition is considered.

A colony of pure Caucasians is a real pleasure to work with. One only needs to pass a few gentle puffs of smoke over the tops of the frames and the colony is subdued and there need be no fear of its requiring further smoking to allay an uprising every few minutes as is the case when examining a black or hybrid colony. Their gentleness is really wonderful even under very trying circumstances. Yet they will defend their homes against robbers and enemies equal to any other race of bees.

It has been said they are great swarms, but the writer has never noticed this tendency after trying them for three seasons. All that has been done is to give the queen lots of room as fast as she needs it, and she will be quite contented and work will proceed smoothly. In passing it is as well to state that a good Caucasian queen needs much more room than most other queens for once she starts out to lay in the spring she keeps right on without a stop, even a bad spell of weather does not seem to interfere with breeding. So long as there is stores and pollen the population keeps on increasing.

One colony in particular supplied eight frames of brood to help out weak colonies in May and still showed a fine surplus at the end of the season. Where increase is desired the Caucasians can furnish the brood and bees, and still be in shape for the harvest. Of course, one cannot get results from even the best of colonies if he is not prepared with equipment and common sense to do the right thing at the right time. Wintering is the bugbear of many beekeepers and some races of bees are more hardy than others, but the Caucasian is the hardiest race we have yet tried. They are out in the morning much earlier than the Italians and work on dull cloudy days when other hives are as silent as a graveyard. They will stand unprotected during the coldest weather and still show up strong in the spring, but they conserve their stores well if given protection, which all bees should have.

After a three years' trial of this race I find them gentle, prolific, equal to the best Italians I have for honey gathering and a pleasure to work amongst.

If the strain of bees you have are giving good returns do not change, but if undecided what race to adopt give the Caucasians a trial, but even they will not put a super on the hives for themselves. Any further information can be had from John Brooks, 654 Twenty-fourth Avenue West, Vancouver.

GENERAL FARM ITEMS

In the grain-raising region of the Northwest, the fields are sprayed with a solution of sulphate of iron, as a means of destroying mustard.

Commercial fertilizers should be used in connection with other manures. They in themselves do not make land richer, but rather assist in producing larger crops.

When a nurse crop is sown with alfalfa, too much grain should not be sown. If it is proposed to remove the crop before it matures, it is best to seed with oats.

It has been proved that the manure made from animals fed on clover hay has a double value to that from animals on timothy hay.

One who has tried it says he got the rats and mice out of his barn by sprinkling sulphur on the floor, and he saved a pile of corn by sprinkling sulphur through it as he gathered the crop. It is worth trying.

There are two drawbacks to hop picking. One is so-called hop poisoning, which is simply a sort of prickly heat or rash, sometimes produced by contact of face and arms with the nettle-like fuzz on the stalks of the hop vine. It does not affect all pickers. The other is the dark staining of the hands resulting from the resin of the blossom. It may be removed with the crushed green leaves of the hop.

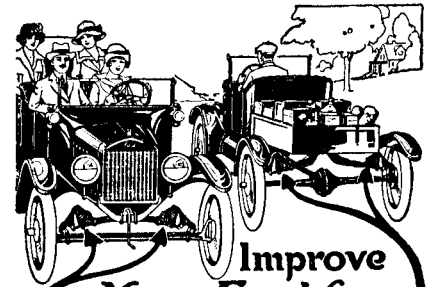
Tests at the experiment stations show that nitrate of soda is superior to both barnyard manure and mineral fertilizers for forcing the growth of tomatoes, and that nitrate of soda is only slightly less effective than the complete fertilizers.

These results, however, do not apply in the case of poor soils, or upon heavy clays.

Professor Harlan, of California, has discovered that the ordinary black ant will remove the scale from fruit trees without injuring the trees or leaves in the least. He says their work is more complete than that accomplished by spraying or by any of the imported insects. The ants are captured by placing a plate of sugar near an ant hill, and when covered with ants the plate is put in the forks of the infected tree. The ants leave the sugar and go to work on the scale. As soon as they all leave the sugar plate is placed at the foot of the

tree and as the ants come down after having cleaned the tree of scale, they again assemble on the sugar and are thus easily removed to another tree.

Sweet potatoes are exposed to the attacks of about a dozen serious insects, some of which feed on the tubers, some cut the stems, and some eat the leaves.



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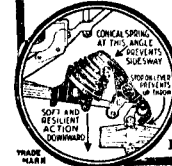
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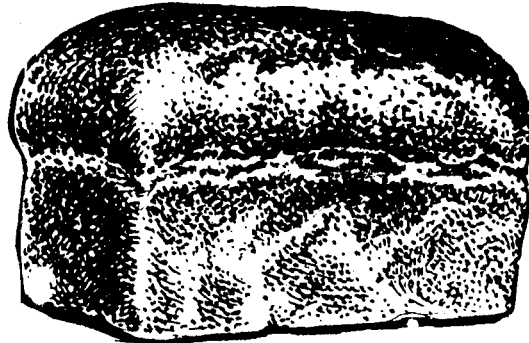


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Horses and Colts

Investigations and experiments show that it does not make much difference whether a horse is watered before or after feeding, provided he is not allowed to drink his fill on an empty stomach while warm.

One pound of hay a day per 100 pounds weight is enough for work horses. Too much is injurious, sometimes causing indigestion or heaves. Colts may be fed all they will eat, but work animals will require considerable concentrates.

The way to get a good, fast walking team is to not overload and not trot them. Two 1200-pound horses, on a 14 to 16-inch plow are overloaded. They are loaded too heavily to walk three miles an hour. Three horses on the same plow will make the work lighter and reduce the cost of plowing.

It is a good plan to work the same horses side by side without change as much as possible. One horse soon becomes accustomed to the other's ways, and both will do better work when the team is seldom broken. Horses of a team should be stalled close together when it is convenient and they are agreeable.

A good way to begin to break a colt is to make a stall for it and tie and feed it in the stall daily. Feeding while you handle the young animal is one of the very best ways of winning its confidence. Use an extra heavy halter on the colt from the first. If it early learns that it cannot break a halter it will go through life with that delusion, much to the profit of the owner.

Colts should be weaned when between three and five months old. Should the colt lack exercise, there is great danger of feeding too much, but if he is getting all the exercise he will take, it is next to impossible to overfeed him. It is best not to feed any more oats than what he can relish and eat readily and greedily, but just sufficient to keep him smooth.

If the horse has defective feet, keep them carefully trimmed and shod if necessary. The soft hoof should be shod, and reshod every six weeks, in winter where the ground is frozen, and at all times of the year when the roads are rocked or graveled. By keeping the horse with poor feet properly shod, it will do good service without loss of time. It is best, however, to breed for good feet.

Many farmers feed too much hay. What a horse will eat in an hour is a great plenty, also enough bran and middlings or ground oats to keep them in good condition. Use a little salt once or twice a week, or better, if you can get it, keep a good sized lump of rock salt in the manger all the time. Occasionally a hot mash with a little oil meal added is a good thing. Heavy or excessive feeding is not necessary if the horse is in fair condition.

While mare's milk is best for the colt, it is possible to raise it on cow's milk, if diluted and slightly sweetened. Mare's milk is thinner and sweeter than cows' milk.

Never retain a driver that has the bad habit of yelling at the horses, striking them, swearing at them, or having rough ways.

A warm bran mash given once a week will be highly relished by the horse. It must not be made too thin, but just wet enough to be moist. It is improved by adding a pint of whole oats to three or four quarts of bran.



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The habit of halter pulling is frequently brought about by the animal becoming frightened in the stall.

A good driver talks much to his animals.

Yelling and jerking the bit is confusing to the horse. To direct in a low voice, and never by whip, is to gain respect. No man whips his animal for fright.

Gardening for the Home

By H. M. Eddie, F. R. H. S., Growing Department B. C. Nurseries

I doubt if there is another operation in practical gardening which is surrounded by more superstition and ignorance than that of pruning. The superstitious are those who imagine there is something approaching the occult in the operation which is only given to a few to understand, and are less to be feared than the latter who will sometimes "rush in," etc., and carve out of the unhappy trees monuments to their incompetency. The principal object of pruning is to produce a well shaped tree and to induce early and increased fruitfulness.

A well shaped tree is one that has the head well balanced with the leading branches the proper distance apart; early and increased fruitfulness is assisted by causing buds which would otherwise remain dormant to develop into fruit buds and later into fruit spurs.

No hard and fast rule can be laid down for pruning; much depends upon the tree; and intelligence is the beginner's chief asset. Generally speaking young trees two or three years old require pruning. Hard pruning produces abundance of young growths and it is much easier to lay a good foundation for the head when there are plenty to pick and choose from than when wood is scarce. Two-year-old trees should have at least three branches from the trunk, and if by chance there should only be two one of them ought to be cut off entirely and the other cut back to within four or five buds of the previous year's wood; this in fact reduces the tree to the same standing as a yearling and gives it a fresh start at forming a head. This appears to be rather a drastic method of dealing with croached trees, but they may possibly make just as much growth as their more fortunate neighbors, especially if well attended to in summer and only the desired number of branches allowed to grow, but in any case it is better than to have the tree split in twain under a load of fruit perhaps ten or twelve years later.

While the principles of pruning are the same for all kinds of fruit trees the operation differs with the various kinds, so that in detail we will have to consider each sort separately.

Giving pride of place to the apple we will suppose a yearling tree has been planted, headed back to the desired height, and has completed its second year's growth producing, say six branches. Now the number of the branches to be retained will depend upon the habit of the tree and the position of the branches, some trees are erect compact growers of which the Ontario is an example, others again like the Jonathan, and in lesser measure the Gravenstein, are straggly, almost horizontal growers.

In the case of the compact grower three branches will be plenty to retain and they ought to be the strongest and most equally divided, all the others must be cut off close to the trunk and those retained shortened back to about two-thirds their original length. In shortening back the leaders attention ought to be given to where the cut is made. If the three branches are evenly divided, cut back to outside buds, that is buds jointing directly away from the centre of the tree, but if they are not perfectly equi-distant from one another this may be corrected in next year's growth by cutting to buds on the sides of the branches jointing in the direction necessary to balance the tree. In the case of the open headed variety it may be possible to retain five of the

branches but this number should not be exceeded; select the most suitable branches, treat as formerly and cut the other off. To illustrate the method of dealing with the horizontal growers we will suppose that the tree has three branches favorably placed but growing horizontally; in this case it may be necessary to cut them back to one-half, possibly one-third their length, cutting to a bud on the upper side of each branch.

The pruning of the apple in after years is along the same lines as above, and by studying the results experience and skill will be obtained; the proper amount cut off the leaders is just that which will cause

the young part to develop every bud, two or three at the tip to develop wood for extension, the others into fruit buds.

Along the main branches of the tree where the fruit spurs develop there is always a certain amount of young growths produced called breastwood; in winter this is "spurred" back, that is cut back, to two buds, the best way to deal with this surplus growth is to pinch out the growing tips of the shoots in summer when they have made about six or eight inches of growth, then cut hard back in winter; this, of course, does not apply to the leading branches.

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We wish to call farmers' attention to the fact that we are now in a position to purchase HIDES for the Fraser River Tannery, which we have secured and enlarged.

We will pay highest market prices for calf and light cow hides.

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The two chief points to remember in pruning is to always cut to buds pointing in the direction the prospective branches are intended to take, and to keep the centre of the tree fairly open to admit an abundance of sun and air.

I have dealt fairly extensively with the pruning of the apple, and in dealing with the other fruits will touch principally on the points on which their treatment differs from the apple.

The treatment of the pear is very similar to that of the apple. Many varieties are very compact growers and require to have their centres kept open by removing the crowding branches in their entirety; by cutting the young branches back to the old wood the danger of aggravating the trouble is greatly reduced.

Pears naturally produce fruit spurs more freely than do apples and therefore require less hard pruning.

In its early years the plum requires similar treatment to the apple, but when once the foundation of the head is laid very little pruning is needed, other than keeping it shapely and to prevent crossing and overcrowding. The stubs, like enlarged thorns produced by the plum tree, especially when young, should not be cut off as they in time will develop into fruit spurs.

The pruning of the cherry is similar to that of the plum, when once the head is formed, the less pruning it needs the better. What pruning may be required is best done in summer, so that the wounds will quickly heal and reduce the risk of gumming to which cherries are liable to a minimum.

The pruning of the peach once the head has been started is quite different from any of the above, as it produces its fruit chiefly on the young wood the practice of spurring back to form fruit spurs is out of place. In this case the production of young wood is encouraged by removing the old barren wood, the idea being to have the tree covered with fruiting wood from top to bottom.

Having nearly reached the limit of my space it is impossible for me to go into details on peach pruning but may do so at a later date. The black currant is similar to the peach in so far as it also produces its fruit on the young wood. When young it ought to be pruned hard to lay a good foundation for the bush, but in after years every encouragement ought to be given the young wood. The bush is very liable to become overcrowded when the old branches ought to be removed and preference given to the young; and by systematically cutting back an old branch here and there close to the ground a fresh supply of strong young wood will be assured. Red and white currants are spur bearers and require treatment similar to some of the fruit trees. When young the bush ought to be hard pruned and subsequently about a dozen branches selected

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Grade 1, for practically all insect pests; Grade 3, for red spider, mealy bug, mildew and rust, and for farm use on animals, etc. Cans, postpaid, 50c. Double sizes, 85c, \$1.55 and \$2.80. Cash with order. Agents wanted. **Phytophiline Distributors, 1455 Eighth Ave. W., Vancouver, B. C.**

to form the bush, training them as equidistant from one another as possible.

The side growth from these branches must be spurred back the same way as for apples, and the tips of the leaders may also be shortened to ensure a uniform production of fruit spurs from the ground up. Summer pruning has a very marked effect on the quantity and quality of red and white currants.

The pruning of the gooseberry is a combination of that advised for black and red and white currants. They bear fruit on spurs on the old branches and on the young wood as well; the chief points in pruning the gooseberry is to keep the bush open so that the fruit can be easily gathered, spur back the breastwood to encourage the production of fruit spurs, but do not stop the leaders as with red and white currants unless it is for the purpose of forming new branches.

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

Garden Hints.

Potatoes lying several days after being cut for planting, will not yield more than half the crop as those planted as fast as being cut.

Continual selection of large potatoes will not increase the size of the tubers.

Experiments have proved that the soil mixture best adopted for forcing head lettuce is of a rather compact texture, and contains a good portion of fine sand, clay and silt, moderately lightened with fairly well-rotted horse manure. It was also found that after a heavy application of stable manure any further addition of chemical fertilizers is only thrown away. Chemical fertilizers gave best results on sandy soils, fairly well-rotted stable manure on clay soils.

The odor of the onion is due to the sulphur contained in the bulk.

To dry herbs, tie in small bundles and hang in an airy shed.

All crops have a tendency to deteriorate if the seed is carelessly selected.

The period for which the seeds of different plants maintain their vitality varies a good deal. The seeds of some vegetables are worthless after they are two years old,

while the seeds of other plants improve with age until a certain period. For instance, the seeds of artichokes are good until they are three years old; asparagus, four years; beans, two years; kidney beans, one year; beets, ten years; broccoli, four years; cabbage, four years; carrot, one year; cauliflower, four; endive, four years; kale, four years; leek, two years; lettuce, three years; pumpkin, ten years; radish, four years; salsify, two years; spinach, four years; squash, four years; tomato, two years; and turnips, four years.

The Fruit Market.

It is claimed that the cost of picking a barrel of apples on very high trees will average twenty cents; while when the trees are low-headed, the cost will not exceed half that amount.

Only good, sound apples should be used for cider.

If apples are left until they are fully ripe, so as to be good eating before they are gathered, they will not keep well.

It is best to allow winter apples to get good color before gathering, and yet not let them become fully ripe.

Dampness in a cold storage room is all right and prevents evaporation and wilting of apples, provided the temperature is low. If the air is damp and warm there will be rot from the growth of germs of disease which cause it.

FOR SALE

Marshall Strawberry,
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Everbearing Progressive,
\$1.00 for 100

All this year's buds.

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Flowers for Christmas

Beautiful Chrysanthemums, the flower that lasts, for \$1.00 per dozen. Roses, Carnations, Violets, etc., carefully boxed and delivered on time. Holly, well berried, Cedar Roping and other Christmas decorations. Begonias, Glorie de Loraine, Cyclamen, Primulas, Ferns, and beautifully decorated baskets at moderate prices.

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POULTRY SECTION

POINT GREY POULTRY AND PET STOCK SHOW

The fourth annual show of the Point Grey Poultry and Pet Stock Association, held at Kerrisdale, November 27th and 28th, was an entire success and a great credit to the district. In numbers of entries and general enthusiasm it was much greater than any preceeding show, and the quality of the birds showed that in the district of Point Grey is to be found some of the very choicest poultry in the province. Great credit must be given to the executive committee and members of the association for the businesslike way the show was conducted.

During the months of August and September the members divided up the district and made a house-to-house canvass to ascertain the number of birds in the entire district, and it was a surprise to them when completing the census to find there was about twenty thousand birds. By coming in personal touch with the poultry people this way many who had fine stock were encouraged to enter it in the show.

There were about four hundred birds entered. All breeds were well represented, making good competition and showing that in the district, although the majority of breeds kept are of the utility sort, still there are hobbyists who fancy one or other of all the breeds.

This was a score card show which gave the exhibitors a very intelligent idea of the merit of their birds.

Mr. Wm. Stonehouse acted as judge and, as usual, gave entire satisfaction to all competitors.

KILLING POULTRY BY KINDNESS (By Mr. K. Boyer)

In the yards of the beginner—especially the man who keeps poultry as a hobby—each year a large number of fowls are actually killed by kindness. The writer firmly believes that the imaginary kind acts are the fruitful source of more deaths in the amateur's yards, than anything else.

Fowls have a peculiar nature, in that they are always hungry, or apparently so. It is true they can readily be stalled, and will leave part of their feed, but give them something different from what they have had and they will, as a general thing, pitch into it at once.

The poultry in the backyard, as a rule, get all the table scraps—meat, potatoes, other vegetables, and bread—and besides the beginner imagines that they must have a regular amount of morning mash, and the usual quantity of grain at night. It is not very long before the fat accumulates and then there is an overplus, and one after another the fowls die suddenly—fall dead off the roost during the night; or die while on the nest; or fall of a sudden without apparently a reason for it. Apoplexy, vertigo, leg weakness and kindred ailments, all come from this diseased condition, overfat.

The fowls in the yards of the beginner are apt to be too much petted. It is right, it is proper, to have tame fowls, but it is wrong to overdo the matter. It is very cute to have the hen eat out of one's hand, but it will be only a question of time before she will be so fat that she will cease to be a layer, and grow prematurely old.

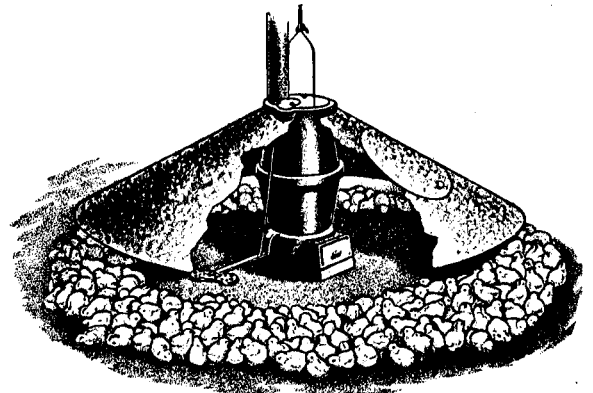
The duty of the beginner is to have regular feeding hours and stick closely to them; he must have the rations well balanced so that they will not get too much of either carbonaceous or nitrogenous material, especially the former. He must well feed,

but not overfeed. Give the fowls what they will eat up quickly and cleanly. Also be careful not to underfeed, for that is as bad as overfeeding. Where there are plenty of table scraps it is best not to feed a morning mash, but instead at night give a good hand-

The Standard Colony Brooder

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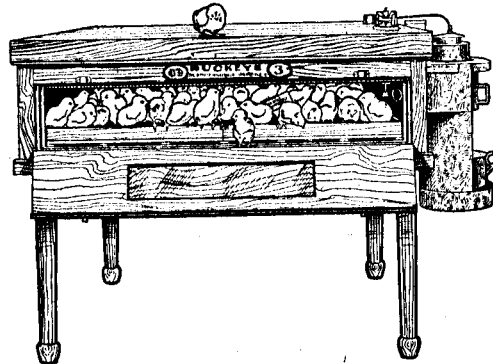
This is the COAL-BURNING BROODER that took all the gamble out of the chicken business by eliminating the excessive death loss that was so common with the older types of oil-burning brooders.

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GUARANTEED TO HATCH MORE CHICKS—AND STRONGER CHICKS—THAN ANY OTHER INCUBATOR.

A twenty-five year record in which the Buckeye has persistently outclassed all competition makes this guarantee an assurance.

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THE BIG POULTRY SUPPLY HOUSE

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ful of mixed grain (equal parts of wheat, oats and corn) for each fowl in the pen. That will be about what they will need to fill their crops, and that is about what they will quickly and eagerly pick up. Even if they do seem hungry after eating it, it is best to allow no more. Fowls are not always hungry when they run after you. It becomes a habit with them.

Where mash is fed in the morning, about half the quantity should be given, by measurement, that is given of grain at night. If too much mash is fed, the fowls are apt to sit about all morning and do not take proper exercise, consequently cannot properly digest their food.

In referring to the quantity of food given to fowls reference is made mainly to matured birds, those in laying and breeding condition. Young, growig stock should be given all they will eat, provided, of course, a good balanced ration is allowed them. But the appetites of both the old and young stock must be studied. When it is seen that they do not seem hungry when the regular feeding hour arrives, it is best to cut out that meal, or give them only a part of it. Care must be taken that they do not get "off their feed." The bill of fare, too, must be a variety, for to confine fowls to a single grain diet will quickly destroy their appetite and eventually destroy their usefulness.

It is difficult to overfatten hens when they are in the heighth of their laying, the dangerous point being when they are not laying. In the production of eggs the hens must be well fed, and wisely, too. The strain on them in building up the tissues and in manufacturing the eggs requires good, nourishing material and enough of it. It is equally so in growing stock—but another danger mark is when the pullets are matured and about beginning to lay. If they then are overfed, the laying period will not only be delayed, but the crop of eggs will be unsatisfactory.

In short, killing by kindness must be avoided. Give sufficient but not too much; to overfatten is but to invite disease.

Ducks should have attained their market weight when ten weeks old. After that the growth of pin feathers start, and there will be a gradual loss of weight until the new crop of feathers is grown.

The Long Island duck raisers scald their market ducks, removing all the feathers but those on the head, part of the neck, the flights and tail feathers. Boston prefers them dry picked, with tail feathers removed and pin feathers shaved.

A sovereign remedy for limber neck is four drops of turpentine in a teaspoonful of water. Limberneck is caused by fowls eating some dead animal matter that has bred maggots.

Authorities on artificial incubation generally agree that smoking a pipe or a cigar in the incubator room is injurious to the hatch.

Strictly first-class market stock is well fatted, the breast bone does not stick out like the keel of a boat, the meat is yellow in color, the carcass well dressed, cleanly picked, and not roughed all up nor torn. It is also clean of pin feathers, and no dirt is found on the legs and feet.

Geese are dressed in the same style as ducks.

Turkeys for market should not be deprived of food for a longer period than twelve hours. They are killed by bleeding in the mouth and neck.

Pullets that are not properly grown, or in some way have received a setback while growing, will be correspondingly slow in starting lay.

The proper way to check the progress of

liver disease is to change the food. The fowls first are afflicted with indigestion, and if this is not being treated, the trouble advances to some liver complaint. All food of a stimulating nature must be dropped from the bill of fare.

Copulation does not fertilize the egg laid the same day. A study of the ovaries teaches that the egg that is laid today was already coated with shell at least twelve hours before being laid. That meeting, however, should fertilize a series of eggs laid afterwards by the hen, although it might be several days before fertility in eggs would be found. Some authorities claim that a male actually fertilizes ten eggs at the same time.

The more neatly a carcass is dressed, the better the chance to sell it to a good trade. Attractively dressed poultry sells itself, while inferior stuff goes begging.

Buy stock from good laying strains, if eggs are mostly wanted. Select stock for broilers from flocks that have plump breasts and broad backs. Such birds will "score" 100 in market poultry, and yet probably be disqualified for the show room. While it is important to keep poultry within the line of thoroughbred, there is no particular value in scores for market poultry. It is almost next to impossible to have show records and first-class utility qualities in the same stock.

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One prominent farmer says:

"Delco-Light has actually added to the value of my farm—

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Delco-Light brings city comforts and conveniences and economies to the farm.

It lights the house and barn—it furnishes power to pump the water, wash the clothes, churn the butter, separate the cream—run the vacuum cleaner and the electric fan.

It is so simple that a child can operate it and so economical that it actually pays for itself in time, labor and fuel saved.

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Hog Producers Assured Protection

There is a shortage of 32,425,000 hogs in Europe. Britain, France and Italy urgently need all the hog products that the United States and Canada can possibly produce. The Dominion Government and the Provincial Governments are co-operating to greatly increase the production of hogs in Canada. In connection with this undertaking, Hon. W. J. Hanna, the Food Controller for Canada, made the following statement to a representative gathering of packers and produce men:—

“The hog producer will want to know at the very outset that there is assured to him as grower his fair share of the price paid by the consumer.

“Between him and the consumer is the packer and the distributor. Both he and the consumer have the right to know that the charge for packing and distributing is in relation to the cost of these services.

“In the case of flour mills, we have worked out what is practically Government control in the form of license. The only profit the miller will be allowed is 25c per barrel on the flour. The bran and shorts will be sold to the farmers at actual cost. We are adopting a plan for control in connection with wholesale fruit and vegetable men. In the case of packing houses and cold storage plants it **must mean practical and effective Government control.**”

CONFIDENCE JUSTIFIED

The assurance to the producer of a fair share of the price paid by the consumer, considered in association with the ever-increasing demand of the Allies for meat, justifies confidence in the future of the swine industry.

There is a world shortage of meat. In Europe the situation is so critical that it is now one of the vital factors in deciding the outcome of the war. And hogs, on account of their prolificacy and early maturity, provide the only way to relieve the emergency.

Some idea of the enormous increase in the consumption of bacon and hams overseas since the beginning of the war is given by a statement of the British Imports:—

In 1913 they were....	638,000,000 lbs.
In 1914 they were...	664,000,000 lbs.
In 1915 they were...	896,000,000 lbs.
In 1916 they were...	1,006,000,000 lbs.

There has been no increase in the world's hog production to meet this enormous increase in consumption. Quick action by the Canadian producer is needed. The number of hogs slaughtered at Inspected Establishments in Canada in September, 1917, show a decrease of nearly 27%, compared with September, 1916. Despatches from Copenhagen state that the total prohibition of pork exports is anticipated in order to insure an adequate supply of meats and fats to the Danish population.

In view of the urgency of the situation every person who can raise hogs should seriously consider the possibility of raising at least one or two extra litters. There is an individual responsibility. Young sows which are slaughtered now only produce about 150 lbs. of meat per sow, whereas each of these young sows, through her progeny, could produce, at a moderate estimate, 1,500 lbs. of meat within a twelve-month period.

SAVE THE YOUNG SOWS

Every soldier in the British Army requires a $\frac{1}{4}$ pound of bacon per day in order to maintain the highest efficiency. Multiply this $\frac{1}{4}$ pound of bacon by the millions in the Allied Armies and some idea is secured of the urgent need of increased hog production for military purposes alone.

Dominion of Canada Department of Agriculture

LIVE STOCK BRANCH
OTTAWA

WOMEN'S SECTION

British Columbia Women's Institutes

Motto—"FOR HOME AND COUNTRY"

PORT HANEY NEWS

The Women's Institute, at their last meeting, had a difference in opinion as to whether preference was to be given to the Orphanage or the Women's Christian Temperance Association in a distribution of fruit and vegetables to be collected. Wisely, they decided to give both, by dividing the gathered products. Tea was served at the close of the meeting by hostesses Mesdames Abernethy, Hall and Vaughan.

AGASSIZ

The regular monthly meeting of the Agassiz Women's Institute was held on Tuesday in the Institute rooms. There was a good attendance, and in addition to the report of the convention, the chief topic of the day was "Conservation of Food," which was ably discussed.

CLOVERDALE

The regular monthly meeting of the Surrey Women's Institute was held November 4, in the municipal hall, Cloverdale, nineteen members being present. In the absence of the president, Mrs. Croft occupied the chair and gave a paper on "Conservation of Food," which emphasized very forcibly the need of saving food and also of shifting the consumption of foodstuffs. A special meeting has been planned to get the heads of different organizations together to arrange for distribution of food pledge cards. After the serving of lunch the meeting adjourned to meet again December 4.

CENTRAL PARK

Central Park Women's Institute on Thursday November 15 nominated officers for the ensuing year to be confirmed at the meeting next month. Plans were laid for the distribution of the food conservation cards which this organization have promised to attend to for the district between Central Park and Royal Oak.

Miss Summer's report for the committee on soldiers' comforts stated that \$81 had been spent in material fund for the month of October. The Japanese social, held on November 2, netted over \$33. Dr. Cameron, of Collingwood, who had been asked to address the institute, was unable to be present.

Mrs. Ralph Smith will address a meeting held under the auspices of the institute during the first week in December. A number of resolutions from the conference were endorsed.

UPPER SUMAS

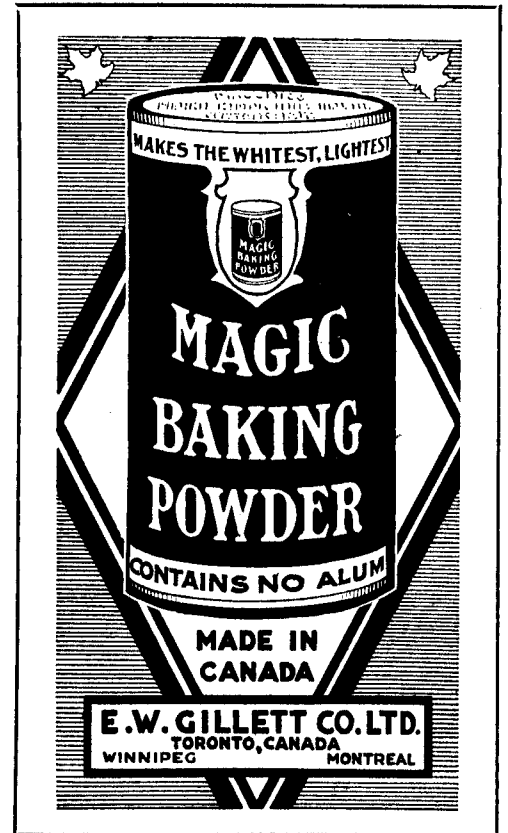
The Upper Sumas Women's Institute met at the home of Mrs. W. Fraser on November 8. There were ten members present: Mesdames Campbell, Fraser, Hart, Munroe, Murphy, Nelles, Skinner, Winson, F. York, T. York and two visitors, Mrs. McGowan and Mrs. Coaker. The Red Cross fund received \$88.05 from a sale in Stralton, \$26.41 from a dance at Huntingdon, \$7.35

from a dance at Whatcom road, \$2 from Mr. Fooks, 33 cents from postoffice box. Mrs. Hart reported sending off \$16.25 to the prisoners of war fund, and \$3.65 in hand. Mrs. Murphy's report of the conference at Mission was eagerly listened to, and discussion of many of the resolutions passed there followed. House cards, pledge cards and copies of "war meals" were distributed, but no arrangements for the forming of a local committee for food conservation were made, as the members are already doing their utmost on these lines.

While refreshments were served a collection for the Y. M. C. A. realized \$1.30, and for the prisoners of war \$1.80. Members were reminded that at the December meeting officers would be elected for the coming year, and fees become due.

TYNEHEAD

The monthly meeting of the Women's Institute was held at the home of Mrs. Inglis. Eleven members were present, and three visitors. The report of the directors regarding the Hallowe'en dance held in the public hall was received, and the amount cleared at the dance was \$25.95. A hearty vote of thanks was given to the directors and News Club for all their trouble in de-



corating the hall and serving the refreshments.

It was decided to have a "work bee" to clear up the grounds, and especially the

Boxed Handkerchiefs for Christmas

EXCELLENT ASSORTMENTS AND FINE VALUES

FOR WOMEN—

—White Mull, with embroidered corner; 2 in box, **30c.**

—In Mull, with colored embroidered corner; 2 in box, **35c.**

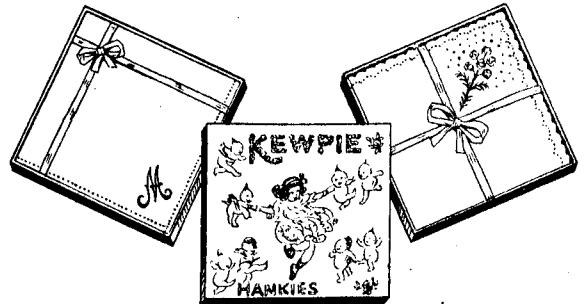
—Fine Lawn, with white or colored embroidered corner and colored roll edge; 3 in box, **50c.**

—Sheer Lawn, hemstitched, hairline borders and hand-embroidered corners; 3 in box, **65c.**

—In Mercerized Lawn; 3 in box, for **65c.**

—In Linen Lawn; 2 in box, for **65c.**

Women's Pure Irish Hand-Embroidered Initialed Handkerchiefs in very effective design; exceptional value, 6 in box, for **\$1.80**



FOR CHILDREN—

—Mull with pink, blue or mauve borders; 3 in box **25c**

—Silk, with colored designs; 3 in box for **25c**

—Muslin, with embroidered corners, 2 in box **25c**

—Other attractive designs, 2 for **35c** 2 for **40c.** and 2 for **50c**

All Handkerchiefs sent Postpaid upon receipt of price.

Gordon Doyle LIMITED

575 GRANVILLE STREET

VANCOUVER, B. C.

entrance to the public hall, the bee to be held on Wednesday, the 21st. A substantial dinner will be provided for the men, which will be cooked and served by the directors and members of the News Club. A cordial invitation is extended to all to come and help.

Mrs. W. V. Davies, of Chilliwack, was present at the meeting, and she gave an interesting talk on food conservation. She also read the resolutions that were passed at the conference of Women's Institutes, explaining and answering questions in her usual pleasing way. A hearty vote of thanks was tendered Mrs. Davies for her helpful talk. The December meeting will be held on the second Wednesday at the home of Mrs. A. Bothwell.

CRANBROOK

A well attended meeting of the Women's Institute was held in the Parish hall on Tuesday afternoon, November 13, with Mrs. W. B. McFarlane presiding. A letter of acknowledgement was read from Mrs. Blackwood-Wileman thanking the members for their united vote of sympathy with her in her loss sustained by fire while she was attending the recent conference. Mr. Scott's grateful note of thanks was also read expressing hearty appreciation of the gift of \$25 from the Institute to the British Empire Agricultural Relief of the Allies Fund, while a third letter of thanks was read from Balfour acknowledging safe arrival of cushions and quilts.

The secretary gave a detailed report of articles given at the October shower and the work of packing the parcels recently dispatched to France and the wounded in England. One hundred parcels had been sent containing socks, fruit cake, smokes and comforts of all kinds to the extent of 21 articles in all and at a cost of \$275 approximately. The report was received with applause, everyone wishing the parcels a safe journey and in time for Yuletide. A vote of thanks was extended to Mrs. D. Campbell, who so kindly made the cakes.

A donation of \$10 was granted Balfour Sanatorium to be sent to Miss Forrest, matron, to assist her in her efforts for Christmas cheer for the inmates.

The annual meeting falling on New Year's Day it was arranged to hold the same on the Thursday instead of Tuesday and members were reminded of their subscriptions running out on December 31st and that to be eligible for voting at the election of officers on January 3rd their fee of 50 cents would have to be renewed meanwhile.

The president expressed the regret of the Institute in losing Mrs. Christian, sr., and Miss Mills, through their removal from Cranbrook, the former going to Calgary, while the latter takes up her abode in Winnipeg.

Mrs. Erickson very kindly described how socks should be properly made to suit Red Cross requirements, giving measurements and particularly detailing the "Kitchener" toe so necessary in army socks.

Lengthy correspondence was read from the University of B. C., re the Conservation of Food movement, including among other things the appeal to the women of Canada from the Food Controller, Mr. Hanna. Mrs. Hersey was appointed convener of a committee to take charge of this. Several pairs of socks were given in, while 30 pairs had been made during the past two weeks to pack in the parcels.



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\$29.50 & Up.
PLUSH COATS ... \$25 to \$65
SUITS \$19.50 \$27.50
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Four Doors E. of P. O. and Granville St.

VEGETABLE MARMALADES

Less Expensive Than Those Calling for the Use of Fruit.

Vegetable marmalades or jams are made less expensively than fruit marmalades, because a less proportion of sugar is used and because the vegetables may be procured more cheaply. The ingredients for some of these are shown below. In each case the mixture should be cooked slowly until it is thick and the ingredients are tender, and then packed in hot jars and sterilized.

Tested Recipes.

Carrot marmalade—Two cups of ground carrot, 1 1-2 cups of sugar, 2 sliced lemons and 2 teaspoonfuls of ground ginger root.

Carrot and orange marmalade—Two cups of ground carrot, the juice of 2 lemons, the juice and grated rind of 1 orange, 1 cup sugar.

Carrot and pineapple marmalade—One cup of ground carrot, 1 cup of shredded pineapple, 1 cup of sugar, 1 sliced lemon.

Pumpkin and pineapple marmalade—One cup of pumpkin peeled and ground, 1 cup of shredded pineapple, 2 cups of sugar, 1 teaspoonful of ginger; this to stand over night in a granite pan or for several hours until the juice is extracted. Add the juice and rind of 1 lemon and cook as heretofore stated.

Ripe tomato marmalade—Twelve medium sized tomatoes peeled and thinly sliced, 1 1-2 lemons sliced, 1 3-4 cups of sugar; to be placed in stew kettle in layers, cooked in covered vessel until tender, and then to simmer until of right consistency.

Green tomato marmalade—Two pounds of green tomatoes cut in cubes, 2 teaspoonfuls bruised ginger root in cheesecloth bag, 2 cups of sugar, 2 sliced lemons.

SCRAMBLED EGGS WITH OATMEAL.

Put a little lard or fat in a pan, and, when it is very hot, add one cupful of cold cooked oatmeal. Stir for a few minutes, then add one-half dozen eggs, some salt and pepper, and a little butter. Scramble thoroughly and serve. No one could possibly tell that oatmeal had been added, and the six eggs, cooked in this way, will not only be far more nourishing than without the oatmeal, but will go as far as twelve.

CARROTS.

Carrots contain a great deal of sugar, so should be eaten freely wherever there is a shortage of that valuable commodity. They should be trimmed top and bottom, and washed, also scraped if they need it, which they may not do. Place in boiling water with salt and boil for twenty minutes or until tender. They require no sauce save a little butter and pepper.

TO POLISH TINWARE.

Use sifted wood ashes and a little soap. Then shine with newspaper.

HANDY!

Above your sink, and near your stove, have screw hooks on which to hang small articles often used and thus save steps.

THRIFT THOUGHT

Don't throw away left-over skim milk. It is a nutritious food, and every drop of it should be used. One way to utilize it is to make milk-vegetable soups.

Milk-Vegetable Soup.

To each 2 cupfuls of milk use 1 tablespoonful of flour, 1 tablespoonful of butter,

two-thirds of a cupful of a thoroughly cooked vegetable, finely chopped, mashed, or put through a sieve, and salt to taste. Thicken the milk with the flour as for milk gravy and add the other ingredients.

Practically any vegetable except tomatoes may be used with the other ingredients as stated. If tomatoes are used, a little soda should be added to them to prevent the milk from curdling.

ROLLED FLANK STEAK.

One flank steak, salt and pepper, minced parsley, 1-2 cupful bread crumbs, 1 tablespoonful melted butter, 1 sliced onion, 1 cupful soup stock or water, 1 teaspoonful mixed herbs.

Remove the muscle at one end of the steak, and score steak across the grain. Dust it with salt, pepper, parsley, and bread-crumbs, pour over the butter, roll the steak, and tie in two or three places. Place it in a baking pan or casserole, add the onion, stock, and herbs, cover and bake an hour or longer in a moderate oven. Remove the strings and serve with the sauce from the pan.

To Remove Scorch.

Scorch upon cotton and linen sometimes can be removed if the fibres are not actually burned. Wool and silk are disintegrated at a lower temperature than cotton and linen and cannot be restored to their original condition after being scorched, says a bulletin on the removal of stains from clothing and other textiles, issued by the United States Department of Agriculture. For removing slight scorch stains from cotton and linen use one of the following agents:

1. **Water and Sunlight**—Wet the spot with water (or soap and water) and expose to the sun for a day, or longer if necessary. The scorch disappears much more slowly if the material is not moistened before exposure.

2. **Bread Crust**—Very slight scorch on the surface of materials which are not especially delicate sometimes can be rubbed away with a bread crust.

Kerosene Helps.

The uses of kerosene are many, and all housewives are familiar with some of them. The best is worth saving.

A cup of kerosene to a pail of water will put a gloss on your windows, oilcloth and linoleum. It will take grease from wood-work.

A rag wet in kerosene will clean the bathtub and wash-basin. It will take the smoke from granite kettles and clean paint where soiled fingers have smudged around the door-knob. It will take off the rust from the kitchen stove.

If your sewing machine runs stiffly, saturate the parts with kerosene and leave it on over night. In the morning wipe dry, then oil with a high-grade machine oil, and the machine will run like a breeze.

Cut the grease from your drains and sink by using kerosene on a brush.

Put some kerosene in your starch and see what an easy ironing day you will have. If your irons are rough wet a cloth with kerosene and while the irons are very hot, rub them on the cloth vigorously.

CHRISTMAS FARE AND CHRISTMAS FUN.

How to Bake a Turkey.

Ninety-nine cooks out of every one hundred will bake a turkey with the back to the pan, but this is a mistake. The best way to prepare a turkey is to bake it with the

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MAIDEN
CANADA
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Now-a-days Governments, Chancellors, bankers and business men talk economy, However, it is one thing to talk economy and another to put it into practice.

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breast down. The breast is turned to the bottom of the pan, and instead of being dry and tasteless when it is served is richly flavored and as sweet and juicy as one would care to have it. All the fine flavoring of the turkey, juice of the dressing, and all the daintier juices flow down towards the breast of the fowl, and when the white meat is served you get the full benefit of every flavor added during the processes of preparing and baking the turkey, in addition to the distinctive taste of the fowl itself. It is just as easy to cook a turkey in this way as in any other way. It is no trouble to arrange the fowl in the pan; if you desire to place the fowl on the table before carving it you will find that it will look quite as well as it would if baked in the usual way, and certainly it will taste much better.

Recipe for Christmas Pudding.

Ingredients:—4 pounds raisins; 3 pounds currants; 1 pound mixed peel; 2 ounces of sweet almonds; 3-4 pound sugar; 1 3-4 pounds of flour; 2 1-4 pounds suet; 2 slices bread crumbs; 8 eggs; 3 nutmegs. Mix all dry ingredients together, add eggs, and beat up stiff. Boil for eight hours.

To make hot for the table put in boiling water for an hour or two.

For Your Christmas Baking.

Remember when you have citron or candied peel to cut for cakes, puddings, etc., steam until tender, then it is quite easily cut, and is nicer in the baking.

That Stubborn Cake.

If a cake sticks to the pan, wring a cloth out of hot water, place the pan on it for a couple of minutes. The cake will then come out without any trouble.

Crisp and Fresh.

To keep cookies fresh and crisp in the jar, place crumpled tissue paper in the bottom.

FOR THE CHILDREN'S PARTY

A Duck-Pond Cake.

The day before serving, bake a good-sized, round sandwich cake, about two inches deep. When perfectly cold, scoop out the centre neatly, leaving a "wall" all around, about one-half inch thick. Fill the pond with rather stiff orange jelly, just on the point of setting. This, when firm, makes the water. A little to one side of the pond, place two small white celluloid ducks, and at the back cut from a plain post-card, a sign-post, bearing in printed lettering: "Notice! No fishing allowed in this pond." The leg of the post should be inserted in the jelly close to the wall. The jelly should be firm enough to cut in slices, and not to part company with the cake. This "Duck Pond" is especially appropriate to serve at children's parties, where the uniqueness of it will at once appeal to the imagination of the small guests. The life-like shaking of the ducks with every vibration will doubly delight the children, making the cake eclipse in popularity all the usual favorite dishes.

Move the Penny.

This is an indoor game that will always find great favor with a company of young people. The whole amusement is afforded by two balls about the size of billiard balls, and a penny. It is necessary to mark out on the tablecloth, with chalk or pencil, a circle about three inches in diameter, and a straight line about two feet from the circle.

Put one ball in the center of the circle and on its top balance a penny. The trick is to bowl from the line with the remaining ball and try to knock the penny out of the ring. Simple as it may seem, it takes a great deal of practise, for nine times out of ten the penny will drop within the circle. The best way to accomplish this is to bowl very slowly, and by knocking the ball very lightly the penny will roll out on the top of the other ball.

Whistling Race.

Place five boys in a row and give each boy five soda-crackers. He must eat the crackers and then whistle the tune of Yankee Doodle. The one whistling the best tune first is the winner.

Animal Blind Man's Buff.

A player is blind-folded, and stands in the centre of the circle with a stick, or cane, in his hand. The others dance about him in a circle, until he taps three times on the floor with his cane, when they must stand still. The blind man then points his cane at some player, who must take the opposite end of the cane in his hand. The blind man then commands him to make a noise like some animal, such as a cat, dog, cow, sheep, lion, donkey duck parrot. From this the blind man tries to guess the name of the player. If the guess is correct, they change places; if wrong, the game is repeated with the same blind man.

There is great sport in this game for children, or grown-ups or both together. The players should try to disguise their natural tones as much as possible when imitating the animals and much sport may be had through the imitation. Players may also disguise their height, to deceive the blind man, by bending their knees to seem shorter or rising on toes to seem taller. When there are thirty or more players, two blind men should be placed in the centre.

If you are with intimate friends and wish to have some innocent fun with one of them, whom you know will take the joke good-naturedly, play Farmyard.

Give all your friends the name of some farmyard animal or fowl, including, of course, the donkey. Instruct them all, except the one who is to bray, that at the given signal to commence the "concert" they must be perfectly silent. All being in readiness the signal is given, with the result only of one loud bray.

Snapdragon for the Kiddies.

Get a large flat dish and place on it some raisins, then pour some brandy or other spirit over them and set light to it. Place on a small table in the centre of the room and the kiddies then snatch the raisins off the dish while the spirit is still burning. It is quite harmless and causes lots of fun trying to see how many raisins each can rescue from the flames and eat.

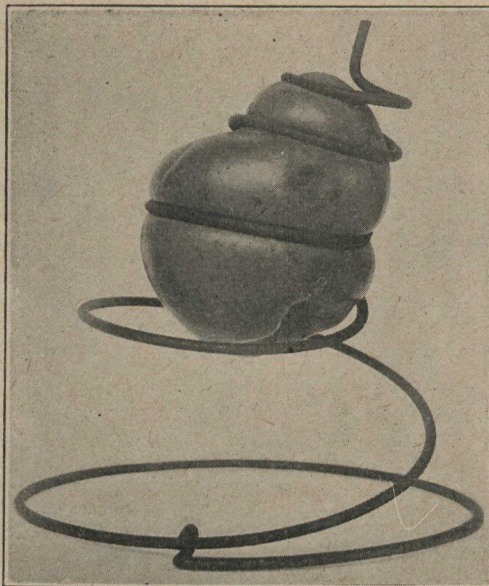
To make this more effective put out the lights in the room.

A Mathematician.

"Daddy," said Bobby, who was eating an apple, "what would be worse than finding a worm in this apple?"

"I do not know, son, unless it would be worse to find two worms."

"No," said Bobby. "It would be worse to find half of a worm."—Everybody's.



THE APPLE WHICH GREW IN THE SPRING.

(Photo by courtesy of Messrs. Henry Birks & Sons, Ltd.)

Grown by Mr. T. Gilpin, North Vancouver, B. C. The spring was evidently thrown into the tree by children, and the apple formed and grew therein; notice how the spring is embedded in the apple. Nothing will prevent apples growing in B. C.

Ten little maidens went to milk the kine,
One met a fierce bull—then there were nine.

Nine little maidens motor-ploughing late,
One saw a field mouse—then there were eight.

Eight little maidens clotting cream in Devon,
One fell inside the churn—then there were seven.

Seven little maidens busy thatching ricks,
One tumbled twenty feet—then there were six.

Six little maidens fussing with a hive,
One met the queen bee—then there were five.

Five little maidens digging on a moor,
One fell into a bog—then there were four.

Four little maidens cutting down a tree,
One chopped herself in half—then there were three.

Three little maidens went a horse to view,
One got too near its heels—then there were two.

Two little maidens playing with a gun,
One pulled the trigger—then there was one.

One little maiden said: "Farming is no fun,"
She turned the gun upon herself—then there was none.

—Mabel Barnes Grundy.

Mothers, Attention. HAVE YOU A DEAF CHILD?

Begin its education in the home.
Write for Particulars to

MISS MABEL B. BIGNEY

Certified Teacher of the Deaf

402 Bonaventure Apts.,

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**WESTERN MANAGER A. McKIM,
LIMITED**

F. PRATT KUHN,

F. Pratt Kuhn, of Montreal, has been appointed western manager of A. McKim Limited, newspaper advertising agency, with headquarters in Winnipeg, and succeeding Thomas Bell, who is engaged in other business.

Mr. Kuhn, who has numerous friends in the west, is well known throughout Canada as an experienced and capable advertising man, with a wide knowledge of markets and merchandising. He joined the head office staff of A. McKim Limited in 1911 and his present appointment is the result of well-deserved success and rapid rise to the top of his profession.

Of special interest to our readers is the O. K. Apple Campaign which his company has recently put on for the fruit growers of this province.

**GARDEN FLOWERS THAT
BEAUTIFY THE HOME**

Many of Which Provide a Wealth of Pollen
for the Bees.

(W. J. Sheppard, Nelson, B. C.)

A good selection of varieties of flowers will keep up a constant succession of bloom in the garden from early spring to late fall. While making this selection the preferences of the bees can at the same time be studied and administered to. What is more delightful than to quietly stroll round and admire a well arranged, and well cared for, and beautiful garden, filled with choice and fragrant flowers, and to listen to the restful and contented hum of the bees engaged in their daily task of sipping the nectar, or gathering the pollen from the blossoms? In early spring crocuses, and the blue scillas, or squills, are the first of the garden flowers to open and attract the aubretia bees. A little later on white arabis, aubretia yellow alyssum, Limnanthes Douglasii and the lovely azure blue forget-me-nots (Myosotis) make their appearance, all of which are great favorites and assiduously visited. We have tried wall-flowers but have always lost them through the snow breaking them

down in winter. Some of the flowering shrubs that begin to open at about this time are a great source of attraction. Many of these make a splendid back-ground for the flower borders. The different varieties of the flowering currants (Ribes) are continually crowded with bees. Then there are the Siberian Pea Tree (Carragana), Berberis, in variety. White and yellow broom (Genista), Daphne cneorum, Oleaster (Eleagnus), Furze or Gorse (Ulex), Bush Honeysuckle (Lonicera), Buckthorn (Rhamnus cathartica and Frangula), Single Lilacs, Wiegelas, in variety, etc.

As a general rule perennials are to be preferred in the flower borders, as when once planted and established they come up year after year and do not require very much attention beyond staking and tying up. The perennial larkspurs, or delphiniums, are splendid and make a grand show during the time they are in bloom, which extends over quite a long period. The colors—, blue, ranging from lovely sky blue to dark indigo and purple shades, are white, pale yellow, and various shades of always to be admired. The Belladonna section, which are of medium height, and the little dwarf Butterfly variety remain in bloom nearly all the summer. The bees are constant visitors to these flowers and they are also a great source of attraction to the tiny glistening humming birds that come and go all day long, while they remain with us. It is always interesting and often amusing to watch their many little antics. The campanulas are very decorative and there are endless kinds to choose from. The biennial varieties of the cup-and-saucer type are most in favor by the bees as the anthers are simply smothered with pollen. The little cat-mint (Nepeta Mussini) makes a nice little plant for the extreme edge of the borders.

Lilies of all kinds are noted for their wealth of pollen and the Oriental poppies have also quite a lot. The latter make a gorgeous show as they are now to be had in colors of all tints, ranging from pure whites, to all shades of pinks, salmons and the most brilliant reds and crimsons. One can scarcely afford to leave out the Iris family, aptly termed the "poor man's orchid," as although not of much, or indeed any,

value to the bees, no garden is complete without them. There is a long continued sequence of most beautiful and quaint flowers if all the various types are grown, viz., the Spanish, English, German, Siberian, and Japanese forms. Phloxes are in the same category as the Iris family, in not being visited by the bees, but are favorites of the humming birds, which frequently hover over them. These make such a grand show and flower for so long a period that they are an absolute necessity in every garden, and are sweetly scented. The dwarf Alpine varieties are well adapted for the rockery. Miss Lingard, and Enchantress, belonging to the suffruticosa, or early flowering section, are perfect gems, and if room can be spared most of the catalogued varieties of the decussata, or late flowering section should certainly be planted. The immense trusses and individual flowers, or pips, as also the colors, of some of the more recent introductions are much larger and finer than the older types. The long spurred columbines too must be remembered. These have been greatly improved of recent years. The humming birds are fond of them, as with their long tongues they have no difficulty in reaching the nectar. Of course no garden would be complete without roses, the queen of flowers. The double kinds are of no service to the bees, but the single-flowered varieties, of which there are so many lovely kinds, and the briars, yield a certain amount of pollen. I almost forgot to mention the paeonies, that succeed so splendidly here. There is an endless array of beautiful kinds. The single-flowered ones have quantities of pollen. The stately hollyhocks should also be found a place, the single forms of which the bees are very fond of. The bergamot, the horse-mint of Texas, (variety Cambridge Scarlet) is very striking and flowers all the summer, and is a great attraction to the humming birds.

Of all the annuals that are grown, there is nothing the bees are so fond of as mignonne, for which room should always be provided, if only on account of its sweet and constant perfume. The bees simply revel in the blossoms and are to be found there every day when they are able to fly. Phacelia tanacetifolia, belonging to a small genus of California annuals, is well worth growing.

LILLY'S
CALF MEAL

MANUFACTURED BY
THE CHAS. H. LILLY CO.
SEATTLE PORTLAND

BETTER THAN MILK

VANCOUVER MILLING & GRAIN CO., LTD., VANCOUVER, B. C., Sole Distributors for B. C.

A place should be set aside for Shirley and other kinds of annual poppies, as these yield bounteous supplies of pollen and also help to make the garden gay. Nasturtiums of different kinds also deserve to be grown, as the bees repeatedly visit them.

For the late summer and early fall there are the perennial asters, or Michaelmas daisies, some of the newer varieties of which are a great advance on older kinds, and are rich in both pollen and nectar. The Japanese anemones, or Wind Flowers, bloom at this period and are very pretty and graceful.

THE AGRICULTURAL VALUE OF GROUND LIMESTONE

The favorable influence of available lime on soil fertility is a well established fact and one that is now widely recognized by farmers. This conclusion is the result of practical experience in many parts of the world and is fully supported by scientific testimony. Many soils are naturally well supplied with lime—present as carbonate of lime—and such soils rationally treated in respect to manuring, cultivation, drainage and rotation of crops, are among the most productive known to agriculture. On the other hand, there are other soils deficient in lime, owing to the poverty in lime of the rocks from which they were originally derived, or to depletion through long continued cropping and drainage. It is those soils that profitably respond to liming or application of ground limestone.

Soils in need of liming are usually acid or sour and will turn blue litmus paper red (methods for testing soils are given in Bulletin No. 80, "Lime in Agriculture," Experimental Farm Series). Soils containing a sufficiency of available lime turn red litmus paper blue, and usually give a more or less strong effervescence on the addition of a few drops of any strong acid. Soils of all types may be benefitted by liming—heavy clays, silty and slaty soils, mucks and light loams and especially, poorly drained soils.

Though quicklime or slaked lime are forms particularly valuable for heavy clays, chiefly from their beneficial effect on the texture or tilth of these soils, improving their drainage and rendering them mellow and more easily worked, ground or crushed limestone has proven a most suitable and profitable form of lime for application to soils of many types and is to be generally recommended. Excessive applications can do no harm as may be the case with quicklime. Dressings may be from two to five tons per acre, broadcasted on the prepared soil and harrowed in.

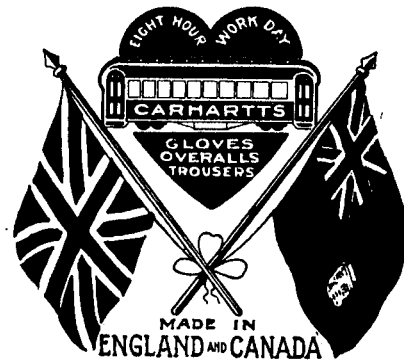
Experiments conducted by the Division of Chemistry of the Experimental Farms in Eastern Canada during the past five years have shown that at many points an application of ground limestone has been followed by increased yields, and particularly has been valuable for the clover crops—the establishment of which may be considered as the basis of profitable farming. The following two instances illustrate the benefits that may be derived from ground limestone applied to soils deficient in lime.

In Experiment 3 at Kentville, N. S., on a sandy loam soil, a plot was treated to

215 pounds of fish scrap, 233 pounds of acid phosphate and 100 pounds of muriate of potash in preparation for an oat crop in the year 1914 and yielded 57.3 bushels of grain. Another plot, similarly fertilized, received ground limestone at the rate of 2000 pounds per acre, and yielded 66.2 bushels of grain per acre—an increase of 8.9 bushels of grain due to the liming. In the second year (1915) of the rotation the fertilized but unlimed plot produced 2 tons, 467 1-2 pounds of clover and timothy hay per acre, while the fertilized and limed plot yielded 3 tons, 760 pounds of hay per acre, an increase of 1 ton, 192 1-2 pounds due to the liming. In the fall of 1915 the strong growth of clover aftermath on the limed plot made it stand out

in striking contrast to the others in the series.

At Cap Rouge, P. Q., on a sandy soil, areas in barley, oats, wheat and peas were treated in 1915 to an application of two tons of ground limestone per acre. The following results were obtained, the products being expressed in pounds of grain harvested per acre: Barley, average of 3 varieties, limed 3900, unlimed, 945. Oats, average of 5 varieties, limed 10, 140, unlimed, 8940. Wheat, average of 4 varieties, limed 4200, unlimed 3315. Peas, average of 4 varieties, limed 7080, unlimed, 3495.



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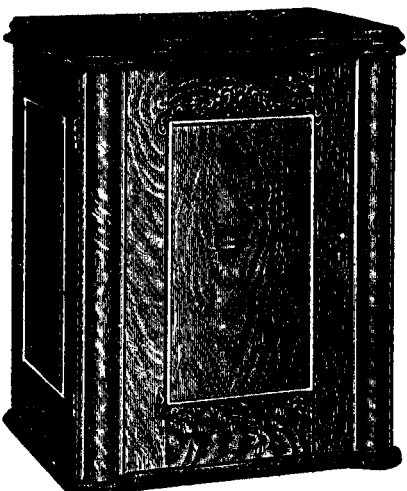
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