

FARM AND DAIRY

AND
&
RURAL HOME



DEVOTED TO
BETTER FARMING
AND CANADIAN
COUNTRY LIFE



Toronto, Ont., May 16, 1918



Comm. of Conservation
Asst. Chairman Jan 18

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WILLIAM KING & MARKET STS TORONTO
ALSO AT MONTREAL WINNIPEG VANCOUVER

Farm and Dairy stands foursquare against everything that is detrimental to the farmers' interests, and whatever appears in its columns, either advertising or editorial, is guaranteed reliable.

If we are to win the war we must GROW MORE WHEAT

and foodstuffs of all kinds. The way to do it is to
USE SYDNEY BASIC SLAG

or at any rate some kind of fertilizer

Let us learn even from our enemies

In a Bulletin issued in 1916, by the Board of Agriculture in England, the statement is made that:

HAD IT NOT BEEN FOR THE USE OF COMMERCIAL FERTILIZERS THE GERMAN EMPIRE WOULD HAVE BEEN AT THE END OF ITS FOOD RESOURCES LONG BEFORE THE END OF THE SECOND YEAR OF THE WAR.

It is also shown that in Germany the average production of grain has risen from 1,034 lbs. per acre in the five-year period, 1878-82, to 1,596 lbs. in 1909-12, and that the yield of potatoes had increased from 3.05 tons to 5.68 tons in the same period. This completely disproves the idea that exists in some men's minds that the continued use of commercial fertilizers impoverishes the soil. Drop us a line and let our representative call and have a talk with you regarding Sydney Basic Slag.

The Cross Fertilizer Company, Limited
SYDNEY, NOVA SCOTIA

Successful Dairy Year in P.E.I.

EDINOR Farm and Dairy: Though 13 cheese factories failed to operate last year (1917), the dairy industry made a fine showing nevertheless, as shown at the annual meeting of the Dairyman's Association last week in Charlottetown. The gross output of the cheese and butter factories amounted to approximately three-quarters of a million dollars. When it is considered that there are only about 15,000 farmers in the little Island Province, this shows it is a good one.

It must not be understood that the patrons of the 13 factories not working were non-producers. The hand separator is largely instrumental for their defection for better or for worse. These people made butter, dairy butter, which met ready sale at a price never before realized. It is thought an effort will be made by the Department of Agriculture to start these defunct factories this year. The prospects for the cheese factory patrons were never brighter for after the adverse winter and heavy snowfall, pastures were excellent this summer, and the prices will possibly net the patron \$1.50 a cwt. for his milk. When milk only fetched 65 to 70 cts. a cwt. there were 45 factories running here in full blast. This, however, was in the days of that great apostle of dairying (for this Island), Prof. James W. Robertson, who inaugurated the cooperative dairy system. But with the defection of Prof. Robertson from the position of Dairy Commissioner under the late Premier, Minister of Agriculture, Prof. Robertson became severed from that position, and little P.E.I. suffered to a great extent, and still suffers for lack of sympathy and benevolent aid from the Dairy Department at Ottawa, while the Provincial Department is not in a position to do much.—J. A. M., Prince Geo., P.E.I.

A Talk With W. A. McKay

A VISITOR to the dairymen's conventions in Ontario in January was Mr. W. A. McKay, Provincial Dairy Instructor for Nova Scotia. I had often wondered how Nova Scotia dairymen, buying as large a proportion of their milfedds as they do and paying more for them than dairymen further West, could make the good showing they many of them have when we consider that they get no more for their product. "How do they keep in the business?" I asked Mr. McKay.

"A lot of them can't stay in the business unless they can get away from the 3,000-lb. cow and get up to at least a 6,000-lb. cow," replied the Maritime instructor. "I figured it out with a farmer's club one night, addressing the audience to verify my figures as I went along. We found that, considering feed alone, every 3,000-lb. cow was losing the owner \$2.85 a year, while the 6,000-lb. cow would show a profit of \$23.75. Our dairymen who are doing well are succeeding primarily because they have good cows, many of them going far above the 6,000-lb. standard."

"Is the oats, peas and vetch mixture being used for ensilage to any extent?" I next asked.

"Our O.P.V. mixture, for which Prof. Trueman was primarily responsible, is not going as fast as we had hoped," Mr. McKay admitted regretfully. "The farmers of Nova Scotia haven't got side or silo-drying machines, and this probably accounts in part for their tardiness in adopting O.P.V. ensilage. Still, quite a lot is grown, and the growers are pretty generally distributed over the province."

"I am convinced," added Mr. McKay, "that Nova Scotia farmers cannot do dairy at a profit unless they grow more of their feed. We can grow clover hay to perfection, but unfortunately we have depended mainly on

turnips, and these we can grow to perfection; far better, in fact, than the same crop can be grown in Ontario. I believe, too, that our turnips have a milder flavor. A yield of 1,500 bushels in the showing was made, and the average good farm is around 800 bushels. With clover hay and turnips we have an excellent basis for feeding, in grain, and, as a matter of my preference, barley does well; but peas, as a rule, are not a success."—F. E. E.

Purity of Farm Water

THE Ontario Department of Agriculture plans to assist Ontario farmers in two ways to improve their water supply—by improving the present supply and by aiding them in locating new supplies. After an investigation extending over several weeks, the Department has discovered that a big majority of Ontario farmers are using well water that is decidedly impure and in some instances seriously contaminated. A booklet recently by the department covers every phase of the water and sanitation problems on the farm, and hereafter water will be tested by the Ontario Agricultural College on application.

The department also stands ready to help the farmers to locate a new water supply. At the O.A.C. now there is a new electrical water finding mechanism. It has given excellent results in India and New Zealand but it has yet to be tried out in Canada. The Dairy Department has covered the tester, that the machine located water in India in 27 tests without one failure, and that in a district with little water. This tester will be available for any farmer who applies for it to assist him in securing a new supply of water.

A Model B.C. Stable

ON PAGE four of last issue of Farm and Dairy is an interior view of the stable of Mr. A. E. Dunville, of Chilliwack, B.C. In sending us this photograph, H. P. Bailey & Son, of Galt, Ont., append the following information re Mr. Dunville and his farm.

"It may be interesting for you to know that Mr. A. E. Dunville is one of the most progressive young dairymen in the Chilliwack Valley, and one of the most successful. He has one of the most modern and best equipped dairy stables in B.C. He has all the modern conveniences, including water systems, ventilating system, litter carriers, silos, feed cutting apparatus, milking machine. He also has a milk handling attachment which is strictly an invention of his own and in the writer's opinion is one of the finest things for handling slight gallon milk cans. I have on several occasions advised him to approach some stanchion firm and have them manufacture the attachment that other dairymen may enjoy its efficiency. He also has a splendid drainage system to his stable as it is located on the side of the mountain. He also has all buildings, including horse stable, cow stable, milk house, hay mow and his house, fully equipped with electric lights operated by a Delco light system. His four unit milker, operating on a 50 cow, two row stand, is operated efficiently by a ½ h.p. only, Delco list motor."

"Mr. Dunville also has one of the best herds in the Chilliwack Valley, his butter-fat test being exceptionally high and if I remember right, last year held the championship for highest butter fat test on a grade cow."

The use of fertilizers concerns him. An average of many experiments shows that the best fertilizer used in growing corn for hush is there is a return of one and one quarter bushels of corn for each hour of labor expended. On unfertilized corn the return is only three-quarters of a bushel.

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VOL XXXV

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AND & RURAL HOME

The Recognized Expert of Dairying in Canada

We Welcome Practical Progressive Ideas.
Trade increases the wealth and glory of a country; but its real strength and stamina are to be looked for among the cultivators of the land.—Lord Chatham

VOL. XXXVII

TORONTO, ONT., MAY 16, 1918

No. 20

This Wonderful, Beautiful and Interesting Earth!

What Are We Here For—If Not To Enjoy Every Possible Fine Experience and Adventure?—By David Grayson

Why risk with men your hard-won gold?
Buy grain and sow—your Brother Dust
will pay you back a hundredfold.
The earth commits no breach of trust.

It is astonishing how many people there are in cities and towns who have a secret longing to get back into quiet country places, to own a bit of the soil of the earth, and to cultivate it. To some it appears as a troublesome maldy only in spring, and will be relieved by a whirl or two in country roads, by a glimpse of the hills, or a day by the sea; but to others the homesickness is deeper seated, and will be quieted by no hasty visits. These must actually go home.

I have had, in recent years, many letters from friends asking about life in the country; but the longer I remain here, the more I know about it, the less able I am to answer them—at least briefly. It is as though one should come and ask: "Is life worth trying?" or "How about religion?" For country life is to each human being a freedom, a strange, original adventure. We enjoy it, or we do not enjoy it, or more probably, we do both. It is packed and crowded with the zest of adventure, or it is dull and miserable. We may if we are still enough, make our whole living from the land, or only use it, or we may find in a few cherished acres the inspiration and power for other work, whatever it may be. There is a man whose strength is renewed like that of the wrestler of frassa, every time his feet touch the earth.

Where Life is Fullest and Freest.

Of all places in the world where life can be lived to its fullest and freest, where it can be met in its greatest variety and beauty, I am convinced that there is none so equal the open country, or the country town. For all country people in these days may have the city, some city or town not too far away; but there are millions of men and women in America who have no country and no sense of the country. What do they not lose out of life?

I know well the disadvantages charged against country life at its worst. At its worst there are long hours and much lonely labor and an income pitifully small. Drudgery, too, especially for the women, and loneliness. Where is there not drudgery when men are poor, where life is at its worst? But I have never seen drudgery in the country comparable for a moment to the dreary and lonely drudgery of city tenements, city mills, factories and sweat shops. And in recent years both the drudgery and loneliness of country life have been disappearing before the motor and trolley, the telephone, the rural post, and the gasoline engine. I have seen a machine plant as many potatoes in one day as a man, at hand work, could have planted in a week.

The Farm Warfare.

There are indeed a thousand nuisances and annoyances that men must meet who come face to face with nature herself. You have set out your upper acres to peach trees, and the deer come down from the hills at night and strip the young foliage; or the field mice in winter, working under the snow, gnaw and trolley the telephone, the rural post, and the gasoline engine. I have seen a machine plant as many potatoes in one day as a man, at hand work, could have planted in a week.

It is something to meet, year after year, the quiet implacability of the land in the ground; the cross seed never waits long for you. There is a chosen time for planting, a time for cultivating, a time for harvesting. You accept the eggs thrown down, well and good—you shall have a chance to fight. You do not accept it? There is no complaint. The land

cheerfully springs up to wild yellow mustard and dandelion and pigweed, and will be productive and beautiful in spite of you.

Nor can you enter upon the full satisfaction of cultivating even a small piece of land at second hand. To be accepted as One Who Belongs, there must be sweat and weariness.

If one has drained his land, and plowed it, and fertilized it, and planted it and harvested it—even though it be only a few acres—how he comes to know and to love every rod of it. He knows the wet spots, and the stony spots, and the warmest and most fertile spots, until his acres have all the qualities of a personality, whose every characteristic he knows. It is so also that he comes to know his horses and cattle and pigs and hens. It is a fine thing, on a warm day in early spring, to bring out the bees and let the bees have their first flight in the sunshine. What cleanly folk they are! And later to see them coming in yellow all over with pollen from the willows!

If You Love the Country.

Why, one who comes thus to love a bit of country, may enjoy it all the year round. When he awakens in the middle of a long winter night he may send his mind out to the snowy fields—I've done it a thousand times—and visit each part in turn, stroll through the orchard and pay his respects to each

tree, in a small orchard one comes to know familiarly every tree as he knows his friends, stop at the strawberry bed, consider the grape trellises, feel himself opening the door of the warm, dark stable and listening to the welcoming whicker of his horses, or visiting his cows, his pigs, his sheep, his hens, or so many of them as he may have.

So much of the best in the world seems to have come fragrant out of fields, gardens and hillsides. So many truths spoken by the Master Poet come to us exalting the odors of the open country. His stories were so often of sowers, husbandmen, herdsmen; his similes and illustrations so often dealt with common and familiar beauty of the fields. "Consider the lilies how they grow!" It was on a hillside that he preached his greatest sermon, and when in the last age he sought a place to meet his God, where did He go—to a garden? A carpenter, you say? Yes, but of this one be sure: there were gardens and fields all about; he knew gardens, and cattle, and the simple processes of the land; he must have worked in a garden and loved it well.

Farm Made Luxuries.

A country life rather spoils one for the so-called luxuries. A farmer may, indeed, have a small cash income, but at least he has the first table. He may have the sweetest of the milk—almost unmeasured, perhaps millions, of men and women in America who have never in their lives tasted really sweet milk—and the freshest of eggs, and the ripest of fruit. One does not know how good strawberries or raspberries are when picked before breakfast, and eaten with the dew still on them. And

work and sweat for what he gets, he may have all these things, almost unmeasured, and without a thought of what they cost. A man from the country is often made uncomfortable upon visiting the city, to find two ears of sweet corn served for twenty or thirty cents, or a dish of raspberries at twenty-five or forty, and neither, even at their best, equal in quality to those he may have from the garden every day. One may say this after the hour and day after day, but rarely monotonously; for fruits sent to the city are nearly always picked before they are fully ripe, and lose that last perfection of flavor which the sun and the open air impart; and both fruits and vegetables, as well as milk and eggs, suffer more than most people think in handling and shipment. These things can be set down as one of the make-weights against the "higher" presentation of the farmer's life as a hard one.

Vicissitude is Not Monotony.

One of the greatest curses of mill or factory work, and with much city work of all kinds, is its interminable monotony; the same process repeated hour after hour and day after day. In the country there is, indeed, monotonous work, but rarely monotonous. No task continues very long; everything changes infinitely with the seasons. Processes are not repetitive but creative. Nature hates monotony, is ever changing and restless, brings up a storm to drive the hay-makers from their hurried work in the fields, sends rain to stop the plowing, or a frost to hurry the apple harvest. Everything is full of adventure and vicissitude! A man who has been a farmer for two hours at the mowing, must suddenly turn blacksmith, when his machine breaks down, and tinker on each and hammer; and later in the day he becomes dairyman, barrier and harness-maker, merchant. No kind of wheat but is grist to his mill, no knowledge that he cannot use: and who is freer to be a citizen than he? Freer to take his part in town meeting and serve in state in some of the important small offices which form the solid blocks of organization beneath our commonwealth.

What makes any work interesting is the fact that (Continued on page 12.)



THE MIRACLE OF SPRING

By Tom Akella

THE miracle of spring! Every year it grows more wonderful to me. Yesterday was one of those days that I had to shoot up to the top of the hill. The soil worked beautifully and by noon the rest ground was ready for the seed. I spent the afternoon pushing a garden drill, a little implement that conserves seed but is conducive to headaches. At one end of the drill I stopped occasionally to look for the alfalfa plants that were just showing themselves among the fall wheat, just showing in shaft. Up on the hillside the barley was just beginning to shoot up in fine green lines and I knew that there, too, alfalfa would soon be springing up and covering the soil with green. In the heavy growth of the north boundary, the birds were singing glad little snatches of song to show their appreciation of the warmth and cheerfulness of the day. Down in the barnyard the chickens were frisking around as they have not done since last fall. All nature seemed to be rejoicing and I forgot the cares and troubles of the world and rejoiced with all other living things. Oh, I am not a poet, not even a writer of anything but the plainest and most practical of farm themes, but this does not prevent me from enjoying nature for long hours of tall, often poorly rewarded. Then let us open our eyes and our hearts to the miracle that is being performed around us by a Beneficent Creator—the miracle of spring.

Russian Sunflowers for Silage

They Will Grow Where Corn Will Not

It is a good many years since Prof. Jas. W. Robertson advocated what has since become known as the "Robertson Silage Mixture." Dr. Robertson remained that it was not a balanced ration, and he proposed to balance it by ensiling along with the corn, sunflower heads and horse beans. The Robertson mixture was experimented with extensively, but never came into use. One ingredient of this mixture, however, is now being used successfully for ensilage purposes in Montana. In Montana, however, they find that the entire sunflower mixture when ensiled makes a good quality of silage, and can be successfully grown when the spring is late and frosts are early.

The idea first originated with a farmer in the Flat-head Valley of Montana, who grew Russian sunflowers for forage purposes, and suggested that the Montana Agricultural Experiment Station give them a trial. Accordingly, in the summer of 1915, a small area, about one-tenth of an acre, was planted to sunflowers in rows three feet apart, and using about 20 lbs. of seed to the acre. The crop grew immensely, producing over 30 tons of green feed per acre. It was then cut and put into the silo with clover ensilage both above and below the sunflowers. During the winter it was fed to the dairy herd, which ate the sunflower silage as readily as they did the clover silage, and seemed to do just as well upon it. In 1916 the station planted three acres of sunflowers in rows 28 inches apart. The sunflowers stood nine to 10 feet high and yielded about 22 tons of green feed per acre. A portion of the silage was cut and fed to the dairy cows as a supplement to the pasture during the summer part of the grazing season, being first run through the feed cutter. The cows consumed 40 to 90 lbs. per head daily, and apparently ate well on the feed. These sunflowers were fed in comparison with green corn, and the results indicated that the sunflowers and corn were of equal feeding value pound for pound. Only about five per cent. of the sunflowers were in bloom, so there was no seed or grain in either case. A bulletin from the Montana station, prepared by Howard D. Dairyman, describes a feeding test conducted to determine the feeding value of sunflower ensilage as follows:

How the Test was Arranged.

"In order to determine the relative value of ensilage made from sunflowers, two lots of cows were fed. Each lot contained seven cows as nearly equal as possible in age, weight, condition, period of lactation, pregnancy, milk production, and fat test. Lot 1 received grain and clover hay and Lot 2 grain, clover hay, and sunflower ensilage. The grain fed was a mixture of oats, 5 parts; malt sprouts, 2 parts; and bran, 3 parts. The clover used was choice alalfa; and at the end of 28 days the lots were reversed and Lot 1 was fed grain, clover hay, and sunflower ensilage; and Lot 2, grain and clover hay for 28 days. This change was made to eliminate as far as possible variations due to individuality among the cows. A preliminary feeding period of 7 days was given at the beginning of each period of the experiment in order to accustom the animals to the change in feed. Individual weights were taken three days at the beginning and at the end of each period, and the averages of these weighings were taken as the initial and final weights. Individual records of milk produced and fat tests were used in order to determine the production.

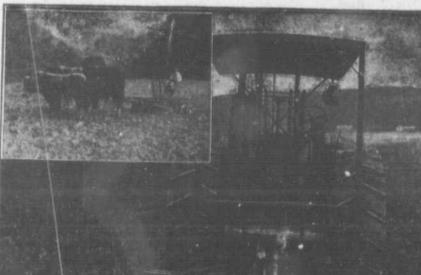
"When only grain and clover hay were fed, the 14 cows gained a total of 155 pounds, or an average of 11 pounds per cow during the 28-day period. The 14 head consumed 5,140 pounds of grain and 8,243 pounds of clover hay, which is practically a daily average of 33 pounds of grain and 21 pounds of clover hay per cow. The total production during the period was 13,884.6 pounds of milk and 642 pounds of fat, or an average of 32.37 pounds of milk and 1.882 pounds of butterfat per cow.

Sunflower Ensilage Results.

"When grain, clover hay, and sunflower ensilage were fed, the 14 cows gained a total of 81 pounds, or an average of approximately 6 pounds per head during the 28 days. The 14 head consumed a total of 5,125 pounds of grain, 4,778 pounds of clover hay, and 8,182 pounds of silage, which is a daily average per cow of approximately 33 pounds of grain; 12 pounds of hay, and 24 pounds of ensilage. The total milk production was 13,464.8 pounds and 571.92 pounds of butterfat, or an average of 84.35 pounds of milk and 1.459 pounds of butterfat per head daily.

"The grain ration was the same throughout the entire experiment and an average daily feed of 31 pounds of sunflower ensilage effected a daily saving of 9 pounds of clover hay per cow. There was a slight increase in production while the cows were receiving the sunflower ensilage. This increase amounted to 0.93 of a pound of milk and 0.77 of a pound of butterfat daily. This difference was so small to be of significance except as indicating that there was no reduction in milk or butterfat production due to the feeding of sunflower on a large place of a part of the clover hay in the ration. The data presented indicated that under the conditions of the experiment, one pound of choice clover hay is equal to 3½ pounds of sunflower ensilage."

Twenty to 30 tons of palatable silage from an acre in a country where corn does not do well because of the short season, will sound good to live stock farmers in New Ontario, in sections of Quebec, parts of the north-west and down in the Maritime provinces. The use of the crop in Montana suggests that experimental work of a like nature might be conducted at our own experimental farms and agricultural colleges during the coming season. If there are possibilities in the crop Canadian farmers should know about it.



A Choice of Power but a Good Implement in both Cases.

"The double cutaway harrow is the best implement ever used on our land," said a prominent eastern dairy farmer a few years ago, when double action disk harrows were first introduced. Since then the double disk harrow has increased in popularity and is being used in all lands and doing good work, whether drawn by tractors, horses, or even oxen. Best of all this year, it economizes on man power.

Establishing a Dairy Farm

Conditions That Determine Its Success

S. Q. CARLVE, Supt. Alberta Demonstration Farm.

THE important initial consideration in establishing a special dairy enterprise is the location and the distance of the farm from railway station. As milk and cream are perishable products, especially in warm weather, it is necessary that they should be delivered to the consumer or manufacturer in a fresh condition, and this necessitates frequent shipments. If the dairy farm is situated some distance from the city or railway station the time spent in delivery is too great, and the cost too high in many cases to show a profit.

Another important general consideration is the character of the soil and climate. Dairy cattle require succulent feed, and through the summer months this can be best supplied by lush pastures, either natural or tame. On this account a farm of moderately heavy soil, rich in organic matter, is preferable to light sandy soil. Liberal precipitation of moisture is likewise desirable.

Pure Water a Necessity.

To carry on dairy farming successfully it is important to select a suitable farm. Perhaps the most important consideration next to good soil is a good water supply. Eighty-seven per cent. of milk consists of water, so it is absolutely necessary for a dairy cow to have a plentiful supply of good pure water. If we can select a farm with a spring or running water near a good building spot, the command in this respect are ideal. But if on the other hand a deep expensive well has to be drilled, with an expensive pump and gasoline engine for drive, it not only does it require a greater outlay at the beginning, but the cost of operating every day throughout the year adds considerably to the cost of produc-

ing one hundred pounds of milk. A young man engaged in the dairy industry in Alberta told me the other day that he has to pay 10¢ per foot for water, and that the well pump and small pumping engine cost him nearly \$1,500, and that it took between three and four hours a day to pump water for his stock. If he could have had a sufficient supply of water from a spring he could have built a reasonably good dairy stable for the cost of the well.

Reducing the Feed Bill

With Special Reference to Summer Production

By H. H. KILDEE.

THE present feed situation strongly emphasizes the importance of growing clover and alfalfa hay, and corn silage or roots upon all dairy farms. Not only do these feeds supply the needs of the dairy cow and make it possible to greatly reduce the grain ration necessary in their absence, but they also yield more dry matter per acre than do other crops grown. Now is the time to make plans for next winter's feed supply, and in case the farm is not already equipped with silage arrangements should be made early for the erection of this most important equipment. In case there is not a sufficient acreage of clover or alfalfa, spring-sown crops, such as oats and Canadian fava peas, will prove a heavy yielding substitute.

The problem of securing sufficient feed to keep up the milk production and profit from the herd this summer is also a matter of importance, as the pastures upon most farms do not furnish enough feed for the cattle during the hot, dry months. The problem of supplying the necessary succulent feeds most economically is, therefore, especially important this year, and may be solved by one of the combinations of the following methods: (1) Better care and management of pastures; (2) use of summer silo; (3) use of soiling crops.

Better care and management of pastures is absolutely necessary to secure the best results. In every neighborhood a practical demonstration may be found that a little care given to the pastures will greatly increase the production of feed. But the pasture crop in itself is not enough for dairy farmers or for many best cattle growers. To secure the greatest possible returns from their land, they find it to their advantage to keep more cattle than they can properly pasture with dairy cattle and to grow soiling crops. The use of silage or soiling crops on dairy farms results in a saving of land, fencing, feed and manure, and in a larger and more profitable production of milk.

Silage vs. Soiling Crops.

Evidently a silo, small in diameter, filled for summer use, is the most satisfactory and economical solution of the problem on the average farm. Most of the soiling crops require more labor in getting the hay than the average farmer, who practices mixed farming, would spare from the field work in the busy season of the year. However, the man who has a large herd of dairy cattle and who desires to secure the best possible returns from his acreage will find it to his advantage to grow some soiling crops. There is nothing better than fresh, palatable, nutritious green feed to stimulate the milk production of the cow. A mixture of leguminous plants, then, too, by having in each bush a large amount of alfalfa, will give a superior to corn silage in balance of nutrient.

Increased milk production from decreased acreage has been the result upon many of the best dairy farms through the use of these soiling crops. At the Iowa Experiment Station it required less than three-fourths of an acre of combined crops and soiling to supply the necessary feed for a cow from the 15th of May to the 1st of November. The cows producing 300 lbs. of butter fat or less were kept up in production and condition without any grain or hay being fed. The heavier producing cows were fed a very limited grain ration in addition to the green feeds and pasture. The total cost of pasturing soiling crops was only \$6.62 for the entire pasture season at the Iowa Experiment Station.

Alfalfa makes an excellent soiling crop, as does a mixture of oats and Canadian fava peas at the rate of 1½ bushels each per acre; amber fodder cane, sown at the rate of 60 lbs. per acre and the rate of 55 lbs. of Canadian fava peas, sown at the rate of 55 lbs. of Canadian fava peas per acre. It is possible to have a succession of green feed during the summer months, and thereby secure better yields of more valuable feed than when green feeds and pasture are relied upon to supply the feed necessary to supplement the dry summer pasture.

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A Working Herd of Grade Jerseys on the

Cooperative Ownership of Equipment

Some Satisfactory Personal Experiences

F. G. SANDY, Victoria Co., Ont.

ABOUT 12 years ago our first implement, cooperatively owned, was bought by four neighbors—a one-horse turnip sower. It is still doing good work and, so far, I have to hear the first word of dissatisfaction. Some six years ago four of us farmers bought a corn binder. At the time we drew up a written agreement, and each kept a copy. By this agreement we arranged in what order we should use it, where it should be housed, and who would pay for repairs in case of disagreement. We never have had any need for the agreement. We use the binder whenever it is convenient. Since then each man has bought a knife for himself, and the binder is doing as good work as ever. The men who do not own a binder pay \$1 per hour for having their corn cut, so you will see that ours is a profitable investment.

About five years ago seven of our neighbors, myself included, bought a blower with which to fill the silo, and it has given entire satisfaction so far as the co-operation is concerned. I think we could have bought a better box—but we have filled a 24 foot silo in eight hours, and we fill the seven silos in seven days. And as we have seven men who are interested it does not take long to move, set and commence filling the silo. For two years we rented a steam engine, but three years ago we bought an engine and we can fill our silos when we wish, as we do not have to wait for some man to come to us. If any repairs are needed, they are paid by the man who purchases them, and after the season is completed, we meet in one of the homes, total the cost and average it among the members. It has not cost us \$2 per member per annum. The men who have no outfit pay \$2 per hour to fill their silos, and have to wait until some one can fill it for them.

We have had absolutely no trouble, so far as the co-operating is concerned. And while we have had a little trouble with the machinery, we have not had nearly as much trouble as some men who have been hired to do the work in the neighborhood. Our neighbors are first-class men, ready to do a day's work for themselves or their neighbors, and willing to wait their turn, knowing that the machine cannot be at all places at the same time, and are blessed with much of ordinary good common sense. If an accident should occur they exercise patience when



A Good Herd of Milk Producers, Pure-Bred and Grade.

Mr. Wm. Scoble, of Wentworth Co., Ont., is laying the foundation of a registered dairy herd in a safe and sane manner. To his herd of grade Holsteins he has added a few pure-bred animals and will work this pure-bred herd, gaining in experience as his herd grows in numbers.

Pacific Coast, where Dairying is Coming into its Own.

nothing else can be done, and I believe this is the secret of successful co-operation.

We are considering the buying of a grain separator and I believe we shall own one some time; and we hope that the experience that we shall gain by owning it may be as pleasant and profitable as our experience of cooperative ownership in the past.

The Importance of Full Stands

One Pointer on Corn Growing

ONE of the first essentials to a good crop is a full stand. The Experimental Station at Wooster, Ohio, has some convincing evidence to offer on this point. For 12 years at that station a test has been conducted with corn planted in hills 42 inches apart, and with from one to four plants in each hill. The yields increased all the way from 35½ bushels per acre with one plant to 50½ per acre with four plants. At present prices for corn, the difference in yield in favor of the four plants as compared with one, would be valued at over \$30 an acre.

This test has a special significance for corn growers this year. All seed corn that has not been tested must be looked upon with suspicion. Seed corn that may look good to all outward appearances may not have a germinating power of 10 per cent. Prof. Gerhart, of Ohio, contends that a man can make \$10 an hour testing corn for germination any year. He can make more than that this year as it would be easily possible to plant enough corn to have four plants to the hill under normal conditions, and get only one plant to the hill in 1918.

Handling Barnyard Manure Efficiently

The Observations of Tom Alfalfa

WE need to conserve every pound of value in barnyard manure. It counts for more than it ever did in dollars and cents and in crop production. A ton of barnyard manure will grow just as much oats, wheat or barley to-day as it would five or 10 years ago. But that increased yield of oats, wheat or barley is now worth twice as much as it was in the ante-bellum days. It follows, therefore, that the manure is worth twice as much as it ever was before.

I have practiced many systems of handling the manure, and consider that the ideal one is to cart it out to nice, level fields not subject to surface water, and spread it every day. This, however, is not always possible, and I know of very few who do it consistently. I don't always live up to my own ideas in this respect. Even when allowed to accumulate for only a few days, however, there will be a considerable loss of fertilizer unless the manure is carefully handled. I have in mind two places where the manure is taken care of in a really efficient manner.

Some years ago I visited a Nova Scotia farmer who was conserv-

ing every pound of fertilizer in his manure. The implement shed was in the form of an "ei" to the barn. The last 20 feet of the implement shed was utilized for a manure pit. It had a depth of three feet at the back and then sloped gradually up to the surface in front. The pit was tightly covered, and no fertilizer was allowed to escape. At intervals during the winter the manure was hauled out from this pit and spread. As a very large proportion of it was from the dairy stable, there was never any heating worth mentioning.

Another instance of good conservation I discovered in Norfolk Co., Ont. This farmer had his cows in two long rows in the big dairy barn. The litter carrier ran behind one row, then out through a door at the end, and around in the other door. At that end value of home-made fertilizer, had constructed a concrete platform with sides elevated about 12 inches. He could drive in one side, load up and drive out. There was no loss from leeching in this case. Were the manure allowed to accumulate for any length of time, however, it might be advisable to have a roof over it.

In our own case, where the manure goes out almost every day, when it happens for any reason that we cannot take it out for a few days, we take particular care to stack it in a square solid heap so that the weather will get a minimum chance to rob it of its usefulness.

Milking 16 to 18 Cows Per Hour

Good Service from a Mechanical Milker

W. T. DAVIDSON, Peel Co., Ont.

WE have had our milker in use for almost two years, and we are well pleased with it. We have milked 18 cows in 45 minutes (one man), but are satisfied if we milk 16 to 18 in an hour, as we are anxious to get the maximum returns from the cows, rather than extreme speed. The past summer we had five cows that we had to take the machine off and dry by hand, as we prefer them dry six or eight weeks previous to freshening. Our experience has been that with good dairy cows the machine milks them too long. The cows prefer the milking machine to hand milking in almost every case, and young heifers and even kickers, are usually easily milked by machine.

We find the milker very simple, so much so, that a boy of 12 to 15 years can run it after two or three days' experience. The whole problem with the milker is to keep it clean. We keep ours immersed in a one to 100 solution of chloride of lime, and have no trouble, hand washing tubes twice a day in warm weather and once a day in cool weather. As to cost and upkeep we figure as follows:

Interest on \$420 at 8 per cent.	\$42.00
Gasoline, 80 gals., at 35c.	28.40
Repairs	10.00
Total cost per year for 15 to 18 cows	103.60
Saving of two men's time	
hour per day at 15c. an hour,	
30c., 365 days, at 20c.	109.50

As during spring seedling, harvest time, fall plowing, and so forth, these two men are driving three and four horse teams during these two hours, the saving would be easily 50c. per hour, or \$1 per day, instead of 30c., as was estimated above. No mere figures can quite represent the satisfaction one feels when all are away save one man, and you know you can milk three cows at once at an average of six minutes per cow.

The best width of wagon tires has been found to be: One-horse wagon, two inches; light two-horse wagon, two and a half inches; medium two-horse wagon, three inches; standard two-horse wagon, four inches, and heavy two-horse wagon, five inches. These figures were secured in extensive tests on earth and macadam roads by the U. S. Dept. of Agriculture.

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A NAME THAT HAS BECOME FAMOUS

A good name is the greatest asset any man or any business can possibly have, providing the name stands for quality and thoroughness in the product it represents.

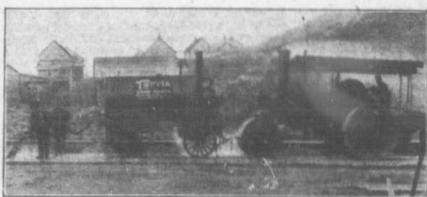
T. E. BISSELL

Experienced farmers in Canada and the U. S. vouch for the name Bissell—they have used Bissell Disk Harrows and Bissell Land Rollers and know that they stand the wear and tear of hard farm work which is the endurance test of any implement. "Bissell" implements are built from the practical farmer's standpoint to do the work properly, and efficiently—and results show that they do it.

The man who constructed the first "Bissell" Disk Harrow and Rollers knew what he was about and has spent over a quarter of a century in perfecting what now stands second to none. He made a life study of this work and is a farm implement specialist. He knows what the farmer needs and the success of "Bissell" implements' has in years of study and experiment with Disk Harrows and Land Rollers that would serve the farmer best.

Bissell Implements are strongly constructed, of light draught and correct proportions, ensuring the farmer of standing up to the hardest kind of work, yet being easier than any others on the horses. Built also in sizes for use with Tractors.

T. E. BISSELL CO. LTD., ELORA, ONT.



Applying "Tarvia-X" on Setburg-Capeville Road, Ont. Photo 1917

Making an all-year-round Road with Tarvia--

ALL the year round this Tarvia road will be smooth, dustless, mudless, and ready for business!

As the picture shows, the

layer of broken stone has been spread and rolled and now the steam-roller is

driving over it a tank-wagon of "Tarvia-X," heated by steam from the roller. A man at the rear directs the spray of the hot Tarvia upon the stone.

The Tarvia flows down among the broken stones, filling up the chinks, coating the stone, and cementing it together.

Behind the tank-wagon other men are spreading over the

Tarvia surface a thin layer of fine crushed stone or gravel which the roller will presently roll down into the Tarvia. Thus is built a Tarvia-bonded

macadam road that defies even our Canadian frosts and withstands heavy motor-

truck and swift automobile traffic. Such is the ideal road for rural thoroughfares because it is economical to maintain and will last three to five times as long as plain macadam, although it is only slightly more expensive to construct.

We have booklets about Tarvia which we should be glad to send you if you are interested.

The **Barrett Company**

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MONTREAL TORONTO WINNIPEG VANCOUVER
ST. JOHN, N. B. HALIFAX, N. S. SYDNEY, N. S.

Spreading the Work by Growing Buckwheat

Some Suggestions on Its Culture—By E. Terrill, Northumberland Co., Ont.

WAR conditions and the scarcity of farm help makes it necessary for the farmer to study on the grave problem of how to manage the several branches of his farm so as to bring about the best results with the scanty help he has. Many of us will consider the advisability of spreading our work as by growing such crops as will cause the work to come more evenly on us during the summer season. I have minded more particularly at this time the growing of fall rye and buckwheat, as we all know that these two kinds of grain can be handled both in the sowing and the harvesting of them during the time we are not busy with other crops. The prices that these grains bring since the beginning of the war make these crops just as remunerative as any that we grow. Rye in our local market is now worth \$2.50 a bushel, and buckwheat \$2. Then again these two crops will stand more abuse in the way of poor cultivation than most other grains, yet I do not know of any crop that will respond to good cultivation in greater proportion than these two.

From my observations I would judge that buckwheat is largely grown

of the year. In 1917, I came across a huge stalk of buckwheat grown from a single kernel. That single buckwheat plant covered an area of ground at least three feet in diameter without the first sign of any living grass or weeds underneath it, while there were over 100 many surrounding it to speak well for the tiller of the soil. I took this bushy mass and observed the many strong branches that shot forth from the central stem. I saw several kernels of buckwheat and leaves the size of the palm of your hand. I at once conceived the idea of this sowing, not only for the benefit of exterminating weeds alone, but for the increase of bushels when the crop is threshed. From that time on, instead of sowing from one bushel to sometimes a bushel and a half to the acre, I endeavored to sow as near to one peck to the acre as possible.

The results of this thin sowing have been most pleasing. The samples, however, only to the ground that is in good condition. On impoverished soil the buckwheat would give 25 inches of cover to the ground. In case any Farm and Dairy readers would care to try this sowing, they might try one-half of their acreage sown with a peck of the acre and the rest of the field with the amount ordinarily sown. This would be a fair test and in succeeding years they could follow whichever course they found most successful.

In no case, however, can a farmer expect a good crop of buckwheat with one plowing. No matter how much fall work has been put on the land, it must be plowed twice in the spring to insure a good crop. As to the time for sowing, I find that people differ as much in their opinions as to the time in the quantity to sow the acre. The bulk of it is sown between the 20th of June and the 12th of July. It is necessary to sow earlier in some localities than in others, so as to escape early frosts. Where early frosts are not common, the later sowing is apt to give the most bushels per acre.

Fertilizer in Corn

MR. JOS. O'REILLY, well known as a Holstein breeder, has been converted to the use of commercial fertilizers for the corn crop. He tells his experience as follows:

"Three years ago when I was farming at Enlismore, we had to put our corn crop on rather a poor land and without manure. I spread 200 lbs. of complete fertilizer to the acre, over the corn land as a kind of last resort. The commercial fertilizer seemed to give the corn a great start and in the fall we had a good crop of corn for the silo, and the oats the succeeding year also made a great growth and yielded heavily. I sold the farm that fall, and the new owner, Louis Carter, who was plowing the oat stubble, he could smell the fertilizer across a 12-acre field, which showed that it was still in the ground to benefit future crops."

Bean Culture Suggestions

PRACTICALLY two-thirds of the beans produced on the North American continent are grown in Michigan and Ontario, and the two States. These two States and one province constitute the American bean belt. Among the bean growers of New York State, one of the best known and most successful is Mr. H. C. Cox of Murray County. In a recent interview Mr. Cox threw some light on a couple of important points in bean culture. Anthracnose is a great enemy of the bean. Mr. Cox says that it is possible to protect beans from disease by very thorough spraying, but he does not consider it practicable. The only practical way to keep bean immune from anthracnose and other diseases is by buying resistant strains of seed

THE SEED CORN SITUATION.

SEED dealers report that the supply of seed corn now in Canada is sufficient to meet every requirement. Farmers generally would prefer to buy the varieties to which they have been accustomed and many of them are placing their orders for southern sorts in fear of trembling. The general attitude, however, is that it is just as well to make the best of a bad situation, and it is just possible that the immense yields frequently secured with the southern varieties may tend to popularize these varieties in sections of Ontario where they have never before been tried.

Announcement is also made that a supply of early seed for husking corn is now available, having been brought in from the state of Delaware. This corn is a flinty Jent, earlier than most dents and should ease the seed situation materially in south-western Ontario where corn is grown for husking. Dealers in Essex county have received a quantity of this corn and the beans will be cleaned, shelled and graded in the Rennie corn plant at Chatham. Farmers may secure quantities of this corn by writing the "Canadian Government Seed Purchasing Commission, care of Wm. Rennie Co., Chatham." The price will be \$5.50 per bushel in small quantities and \$4.75 per bushel in 100 bushel lots, bags extra.

for two seasons—because the land is too impoverished to produce any other crop or to exterminate quack or witch grass. I have sown the crop principally for this latter purpose, but for a long time did not get satisfactory results. As I was possessed of the idea that to "fix" the quack I had to seed the buckwheat good and thick. It is just here that we made our mistake. The thick seeding does not admit of the buckwheat stock branching out and the result is that it grows up spindly with a very small leaf, admitting the sun to between the stalks. The quack will then be found coming along nicely in many places after the buckwheat has been harvested to the disappointment of the farmer.

This was my experience of some years until one day, when I was walking through my potato crop in the fall

and seed which tree from the Comparative vined. In No many fields w July 21st. In Mr. Cox plant we in May 7 early planted time to come u better stand t The time pref ever is the fr this he concea good growed G Cause

Mr. Cox do method of plant he believes th poor stands, a for his beliefe drops with th to go down a before the bea. Oftentia gred out of the is held so firm be bean drops w sprout comin good plant in this loss of se in hills enoug four good plan are 25 inches a 12 inches apart ments and field in recom beans planted to break throu by force of un His advise shal It is useless to water-cooled li

The Annual

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Notes, Que

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WHAT would be ture for m of the feed tate in the sp Co. Ont. Prof. Leitch, Ontario's Agric made a mixture of spring wheat six or seven p seeds; 124 quav acre. Excellen from the use o both wet and stence, in 1915

Rap

WHAT kind of on if we t to best sh —A. McK. (Wf) Rape does b hoke soil with good result a not too wet. sows on stiff ch the growth is g light unless it. Great G exed in pastur from rape, exp need to it.

and seed which it is known has been free from the disease.

Comparatively early planting is favored in New York State last year many fields were planted as late as July 15. In his experimental work Mr. Cox planted beans from the first week in May to the 11th of June. The early planted beans require a longer time to come up, but make as good or a better stand than the later planted. The time preferred by Mr. Cox, however, is the first week in June, and in this he concurs with the majority of good growers in Ontario.

Cause of Poor Stands.
Mr. Cox does not use the drill method of planting bean seed. In fact, he believes that this is the cause of poor stands, and gives good reasons for his belief. He says if a bean drops with the eye up, the sprout has to go down and start a root system before the bean can start for the surface. Oftentimes the roots are pushed out of the ground because the bean is held so firm in the soil; but if the bean drops with the eye down the sprout comes upward quickly and a good plant is the result. To overcome this loss of seed, he favors planting in hills enough seed to insure two to four good plants in a hill. The rows are 25 inches apart and the bean plants 15 inches apart in the rows. Experiments and field tests have warranted him in recommending this system. Beans planted in hills are better able to break through the crusted ground by force of union than single plants. He advises shallow planting and says it is useless to raise beans on sour, water-soaked land.

The Annual Forage Crop

N 1915 Mr. H. H. Craig, Howick, Que., a breeder of pure-bred Holsteins, found that he was going to be short of feed for the next winter. A four-acre field being available, he seeded it with six bushels of oats, 40 lbs. of Indian corn, 50 lbs. of millet and two bushels of buckwheat. The seed went in the ground on July 24. On September 26th, when the field was cut, it stood at least three feet high and yielded heavily. The buckwheat at that time was just in the first stage of ripening.

This mixture made excellent roughage," Mr. Craig told us at the time of the Ormatown Show. "The cows appreciated it, and it constituted the sole diet of our herd bull all winter. It is a good crop with which to supplement a shortage of hay."

Notes, Queries and Answers

Summer Pasture

WHAT would be a good pasture mixture for milk cows for one summer's feed only, the sowing to be done in the spring?—A. Fettesboro', Ont.

Prof. Leitch, Farm Manager at the Ontario Agricultural College, recommends a mixture of one bushel each of spring wheat, oats and barley, with six or seven pounds of red clover seed; this quantity to be sown to the acre. Excellent results are reported from the use of this mixture during both wet and dry seasons; for instance, in 1915 and 1916.

Rape Culture

WHAT kind of land does rape do best on? If wet or frozen, is it likely to do best when pasturing upon it?—A. McK., Oxford Co., Ont.

Rape does best on a deep, rich, moist soil with plenty of humus. It gives good results on muck soil if this is not too wet. The growth is slow if sown on stiff clay, while on light soil the growth is quick, but the crop is light unless it has been manured. Caution should be exercised in pasturing sheep on wet or frozen rape, especially if the soil is used to it.

\$2.21 Per Bu. GUARANTEED WHEAT



Oats, Barley, Flax, Live Stock GREAT OPPORTUNITIES

IMMENSE WEALTH IN WESTERN CANADA

100,000 FREE FARMS
OF 160 ACRES EACH. Government lands along the Canadian Northern, surveyed and ready for entry. Yours is waiting, and a share of the three-quarter billion dollars for crop production to be distributed to farmers this fall. Estimated crop values of Wheat, Oats, Barley and Flaxseed alone for 1917 in Manitoba, Saskatchewan and Alberta is \$613,885,700.00.

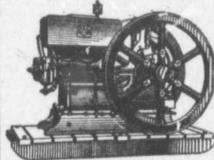
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ALONG CANADIAN NORTHERN. Rich, well located farms, close to railways—homestead producers can be purchased on easy terms, cash or cash and crop payments. Means schools, good roads, telephones and convenient transportation. Act now—get away this spring.

Tractors and Farm Implements
Easily available—new Government assistance plan. Capital or no capital—the work, the opportunity, is there, and the Canadian Northern offers the way. Write to-day for the new "Guide." Contains valuable information based on Government statistics. Any C.N.R. Agent, or General Passenger Dept., Montreal, Que., Toronto, Ont., or Winnipeg, Man.

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These engines are the perfected product of years of study and experimentation with Internal Combustion Engines, and are a demonstrated success on thousands of farms throughout Canada. Get this season and let it replace your hired man. It's a glutton for work and its running cost is little, as it runs on coal oil or naphtha.

We also manufacture a full line of WINDMILLS, Grain Grinders, Saw Frames, Pumps, Tanks, Water Mowers, Concrete Mixers, etc. Catalogue of any list mailed on request.

GOLD, SHAPLEY & MUIR CO., LTD.
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Get the Varnish that is made to do what you want it to do.



MAR-NOT

For Floors

Made for floors—to be walked on and danced on, to have water spilled on it, and furniture dragged over it. MAR-NOT is tough, durable, absolutely waterproof. Dries in 8 hours; will rub and take a high wax finish; pale in color; particularly desirable for fine hardwood floors.

The Sherwin-Williams agent in your neighborhood has the right varnish for your purpose. Ask him.

Color schemes and suggestions for any part of your home furnished by expert decorator, free upon application and without obligation.

Send for book—"The A. B. C. of Home Painting" written by a practical painter, and telling how to paint, varnish stain or enamel every surface in and around the house. Mailed free anywhere.

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SCAR-NOT

For Furniture and Woodwork

has been the means of converting thousands of women to the idea of protection in the home. They use SCAR-NOT to make their furniture, etc., fresh and pleasing,—even boiling water will not affect it.

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For Outside Work

Made to protect outside doors, boat decks, spars, store fronts, etc., against every kind of Canadian weather. It is absolutely waterproof and will not turn white, no matter how long exposed.



No Exemption to be Granted Farmers

Point Blank Refusal to Consider Exemption—Men More Needed Than Production Says Sir Robert Borden

THE farmers of Eastern Canada have asked the Dominion Government to fulfill its pledges not to conscript the agricultural labor so much needed on our farms to prevent starvation among the people of the allied nations. The Government through its prime minister, Sir Robert Borden, has refused point blank to consider that suggestion. That, in brief is the net result so far, at least of the largest delegation of farmers—nearly if not quite 5,000 strong, that ever waited on the Government. The Government did not even hold out hope that exemption might be granted in cases of exceptional hardship such as the only able man on the farm. The only thing that was promised was that where there were special cases of hardship they should be brought to the attention of the Minister of Militia.

The delegation was a most representative one. It included representatives of the United Farmers of Ontario and township and county councils from all parts of Ontario, as well as some 3,000 farmers from the province of Quebec, and Mr. C. L. Smith, the president of the recently organized United Farmers of New Brunswick. The delegation was so large it was at times almost unwieldy. Nevertheless it was, on the whole, well managed and a fine spirit was displayed throughout. That spirit was not over by any means yet, after the Government's decision was announced at the morning meeting a meeting attended by thousands of farmers was held at the monster Arena. It was there decided to return home and circulate petitions immediately in every rural riding calling upon the members of the House of Commons who were to support the farmers' demands to resign and submit themselves for re-election. It was there also decided to write to the government that they do not intend to allow the matter to drop.

Would Not Hear Committee.

At the morning meeting, after the government's decision was announced, a committee composed of Messrs. H. Halbert, President of the United Farmers of Ontario; Manning Doherty, B.S.A. of Milton, York County; Mr. A. C. Thorpe, of Durham County, and H. B. Cowan, of Farm and Dairy, Peterboro', were appointed to attend the afternoon sitting of the House of Commons with a number of members of the House on a number of matters that had not been dealt with at the morning sitting. The government refused to grant the committee an audience. The committee, however, that if a committee of two would appear before the bar of the House at the evening sitting it might be granted an audience. The afternoon meeting appointed Messrs. M. Doherty and Amos, of the U. F. O., to act in this capacity. At eight o'clock the farmers marched in a body to the House of Commons to be informed of by the acting leader of the House, Hon. A. Sifton, that the committee could not be granted an audience. The farmers then marched back in a body to the Arena, heard and passed the report of the committee appointed at the morning session and left a committee composed of Messrs. C. W. Gurney, of Paris, J. Morrison, of Toronto, and J. N. Korrighan of Godrich, to remain over and arrange to have the report of the committee presented to the House of Commons by some member of the House. The report protested strongly against the restrictions that have been placed by the Government in its freedom of the press and the tendency of the government to rule the country by order-in-council instead of through the House of Commons. Fuller reference to this report will be made in next week's issue of Farm and Dairy.

The Proceedings.

The proceedings opened early Tuesday morning when some 2,500 Ontario farmers gathered in the hall of the Quebec farmers met in another large hall in another part of the city. The Ontario farmers quickly organized. Mr. R. H. Halbert, chairman, Mr. H. B. Cowan, of Farm and Dairy, secretary, and J. J. Morrison, treasurer. Messrs. Manning Doherty and Amos, of the U. F. O., representing the New Brunswick farmers, were appointed to present their case to the members of the Government, who, it was announced, would attend the meeting at 11:30 a.m. An invitation was sent to the Quebec farmers to attend the meeting and present their case to the Government at the same time. Hon. J. A. Caron, Minister of Agriculture for the Province of Quebec, was later nominated by them as their spokesman. He spoke a strong case, not as a member of the Government, but as one of the members of the Dominion Government arrived, the report that had been prepared for submission to the Government was read to the meeting in the Russell Theatre by the secretary, Mr. Cowan, and adopted unanimously. A copy of it was then sent to the meeting, the Quebec farmers for their consideration and approval. It referred at length to the appeals of the Government for increased food production, to the Government's pledges not to conscript agricultural labor, to the need for the production of more food if starvation is to be prevented, pointed out the disastrous effects that would be the result of conscription of farmers' sons and ended by asking for continuous leave of absence for all bona fide young farmers.

Government Representatives.

Sharp on time the Prime Minister, Sir Robert Borden, Hon. N. W. Rowell, Chairman of the Committee of the Cabinet, and Hon. T. A. Crerar, Minister of Agriculture appeared before the meeting.

No Rebellious Protest.

The proceedings were opened by Manning Doherty, the delegation of farmers from all parts of the Dominion, he said, was assembled in no spirit of rebellious protest, but rather to strengthen the hand of the Government. There was, however, a dread that the Government might be led to draw man power from an entire industry to such an extent that farmers would not be able to supply food to the allies. "We humbly submit," he added, "that our judgment in the matter of the production of food should meet with serious consideration."

Gen. Mewburn's Promise.

We had last November, said Mr. Doherty, the Hon. Minister of Militia in Dundas saying that necessity for us was so great that he would order a force of food should meet with serious consideration. The farmers believed these assurances and hundreds of thousands broke new land and bought implements, which they thought would be done. Hundreds of young men, working on farms, who believed they were not to be drafted, got married. We are disappointed men and we can see that since now, November last new conditions may have arisen across the water. We can see that it might be necessary for the Government to take a different line. But we must tell you that throughout the Dominion a feeling of unrest, dissatisfaction and want of confidence in the Government is growing.

Loyalty of Farmers.

W. A. Amos, Drayton, Ont., said the United Farmers of Ontario had no alternative but to come to Ottawa. The officers of the United Farmers in To-

ronto had been flooded with petitions and messages. They expressed but one purpose. "We claim," declared Mr. Amos, "that to aggregate body of men has been so loyal as the farmers up to date, and none has been so conscientious. We have sent our young men into munition plants and speeded up agriculture, if only we might share your burdens."

"No industry has been so outraged, as misundoubtedly and so heavily handicapped as the industry of agriculture."

Mr. Amos went on: "We come here not in a spirit of a selfish protest but we are bringing an undue share of the burdens of this war, but rather because we think that the Government has been ill-advised."

Can They Serve This Year?

Mr. Amos said it was a shortsighted policy to cripple agriculture. He pointed out that the farmers had been hard put to it by voluntary enlistment.

"If it not true that those called in the present draft cannot serve this year," he asked, "turn that to the Prime Minister. 'We feel that these men should be left on the farms this summer and taken and trained during the winter and put in the trenches next spring.'"

Voice of Quebec.

Hon. J. A. Caron, Minister of Agriculture for Quebec, said he had not come as a representative of the Quebec Government, but as a private citizen.

There were, he said, 3,000 farmers from Quebec who had been unable to get into the building. But their presence outside showed that farmers of Ontario and farmers of Quebec were united. Farmers were resolutely opposed to the new regulations respecting men between 20 and 30 years of age, who were most particularly needed on the farms.

Effect of the Draft.

If the new regulations were put into effect, Mr. Caron went on, 200 butter and cheese makers would be affected in Quebec and 200 butter and cheese factories would have to be closed.

There would be 900,000 bushels of wheat, for the most part, which would be slaughtered. France was asking for more cheese, but how could raw cheese be produced if 200 cheese factories were to be closed?

Wheat production had greatly increased in Quebec, said Mr. Caron, and this year had been hoped to produce 12,000,000 bushels. How could this be done without young men? Flour mills all over the Province would have to close.

Mr. Caron said he had been Minister of Agriculture in Quebec for ten years and a farmer all his life. Therefore he was qualified to speak, and he wished to draw the attention of Quebec there would be a diminution of 25 per cent this year if the young men were taken. The Government was creating great unrest, incoherence and dissatisfaction in the country.

"Hands off the farmers," said Mr. Caron. That is a good policy for the Government. It had been the policy before this.

Sir Robert Borden's Reply.

Sir Robert Borden, replying to the delegation, said: "You have given us your view of what is desirable in the national interest. I do not understand it in writing, but I will see before me here to-day, or any other farmers in the country, desire to be regarded as a class to whom special consideration should be given as individuals, apart from the national interest. That is not the spirit in which you have approached the subject. I will have communications with you in writing, but with respect to these conditions. It has been said by gentlemen speaking for Ontario that you are very great hardship, very great difficulty, very great inequality will be occasioned and we shall occasion it in that Province and in other provinces by the order-in-council which

was passed on April 30 after, but not until after, it had been affirmed by the House of Commons and Senate of Canada. I desire that you will bear that in mind."

Hardship is Inevitable.

Mr. Caron represented us that the conditions in Quebec are even more difficult and more arduous than elsewhere. I realize that a Military Service Act (such as that which was passed on April 29) must impose some hardship and inequality. But the difficulty which my colleagues and I have been facing in a world-wide war, such as this, is impossible for any nation to participate without hardship, without inequality, and, more than that, without very great bereavement and sorrow. Do you imagine that any man who stands within the ranks of the Government of Canada to-day would find it in his heart to impose any unnecessary hardship or inequality on any man in Canada, or hope at least you will acquit us of that.

"It was a hard thing three years ago and more ago to ask the splendid youth of Canada to go overseas to fight in the greatest cause which humanity ever taken up before. It was a still more serious and more arduous duty to say to the people of Canada that 'he time had now come when we could not fulfill our whole duty to humanity and the world and more than that, greater than, that of ourselves, unless compulsory military service were adopted in this country. We will discuss that duty when on April 29, after discussion in Parliament, we passed that order-in-council to which reference has been made, and which empowers the Government to call up men of certain ages in any class called out."

In National Interest as Understood at That Time.

"You have spoken of what would be done by members of the Government last autumn when the people of Quebec were called upon to meet in Parliament. I want to tell you that that was spoken in the national interest, and that it was the best of the time. And I want to tell you that the order-in-council was passed on April 30 in the national interest as we understood it at that time."

"We don't doubt it," came a voice from the crowd.

Sir Robert Borden continued: "Do you realize that on March 21 last, a boyhood friend of mine, one of your friends and relatives, no doubt participated? That that battle, intermittent from day to day, is still going on? That it may not end for months, and that there are some of the best, some of the highest authority, who believe that it will be decisive of the issues of the war? Do you realize something more? Do you realize that if that line breaks, whether in the sector that the Canadians hold—and they will never go back from it if their fight is for the freedom of the world in the sector which the Canadians hold, or in any other section, the production which you can effect in this Province or in any other Province of Canada may not be of much avail, or the allied cause, or to our men who are holding that line. I regard it as the supreme duty of the government of Canada to do all that is possible of whom have been fighting for three years, are sustained by reinforcements as will constitute to be our first duty. That I will leave to be our first duty."

Mr. Manning Doherty in summing up the meeting said that the farmers had done their duty in laying the conditions before the national interest of the Prime Minister and his Cabinet to do their duty.

"We are the sons of the men who cleared the continent of this country. We are 'We know our duty. Though you decide to make it impossible for us to produce to the maximum, we are still your breadstuffers, admirers of the country and contented and we shall return and do our best."

Field

A New

THE Ontario campaign in connection with a valley came across between Montreal was during the railway strike were at a premium. The internal or resemble those—by this incident—continued to have method used in order to occupy a share of the railway carriage member of the was both original was reading a newspaper which was quite "local," the quitting his feet up in a crowd of those protesting back to the aisle started and eventually to seal this was a natural progression was recorded. It had seemed to the parts of the car as a seat compartment succeeded in making himself as long as possible.

WHILE visiting a brook at the Creek, Ontario, I pressed with them they have fitted barns for their cows. In last seven days disturbed. Consequently, they are in separate little bins in partitioned out or out of the can. I notice their attitude.

WHILE riding in a train, I treated, one of the past winter noticed a bull standing in a field. I observed why he should, but as the time to notice the change which was being made in his treatment. I was particularly struck for the night or for the first time in such cases. They merely by the bull in the snow. In these animals had had their pasture. The farm method of control should first count questions.

IN the barn of H. G. H. which the manager with a slight vent from being his was not sufficient. His and the other their respect. Mr. to put in a station the manager with the difficulty in ever after meeting. It was a stable equipment but he would make

Field Notes

By "Mac."

A New Breed of Hog

The Ontario Government in their campaign for greater hog production would do well to consider a variety of that species which I came across while riding on the train between Montreal and Toronto. It was during the holiday rush, when the railway cars were crowded and seats were at a premium. It is said that the internal organs of a hog closely resemble those of a man, and judging by this incident the similarity is not confined to that respect alone. In my travels I have noticed various methods used by various people in order to occupy more than their allotted share of seating accommodation in railway carriages, but this particular member of the species used one that was both original and effective. He was reading a newspaper. Whenever the train would stop at a station, which was quite often, for it was a "local," the animal in question would swing his feet up on the seat and sit crosswise of the car with his knees in close proximity to chin, and his back to the aisle. After the train had started and everyone had found a place to seat themselves, he would resume a natural position until the next station was reached. So thoroughly did he seem to convince other occupants of the car as to his undesirability as a seat companion that he actually succeeded in keeping the seat for himself as long as he remained in the car.

WHILE visiting the farm of W. C. Honck and Sons of Black Creek, Ont., I was much impressed with the box stalls which they have fitted up in some of their barns for their cows in seven day test. They believe that a cow, to do her best in seven day work should not be disturbed. Consequently, as the cows cannot be in a barn by themselves, they are in separate box stalls with quite high partitions so that they cannot see out or that chance passers by cannot see them and bother them by attracting their attention.

WHILE riding on the train between Smith's Falls and Montreal, one cold stormy day during the past winter's first cold snap, I noticed a bull standing in a fence corner shivering with the cold. I wondered why he should stay there in the cold, but as the train whirled by I had time to notice the reason. A length of chain which was fastened to the ring in his nose, had become entangled in the fence, and he was apparently stranded right where he was for the night or until rescued. This is not the first time that I have seen such cases. They did not all end merely by the bull spending a night in the snow. In some cases I have known the animal was not found till he had died of hunger, thirst and exposure. The farmer who takes this method of controlling a vicious bull should first count the possible consequences.

IN the barn of H. C. Hammer of Norwich, the managers had formerly been just ordinary concrete mangers with a slight rise in front to prevent feed from being thrown out. This rise was not sufficient for the purpose intended and the cows were continually reaching after feed past beyond their reach. Mr. Hammer did not wish to put in a stationary high front to the manger with partitions on account of the difficulty in cleaning out. However, after seeing some of the patent tipping mangers made by some of the stable equipment firms, he decided that he would make one of wood that

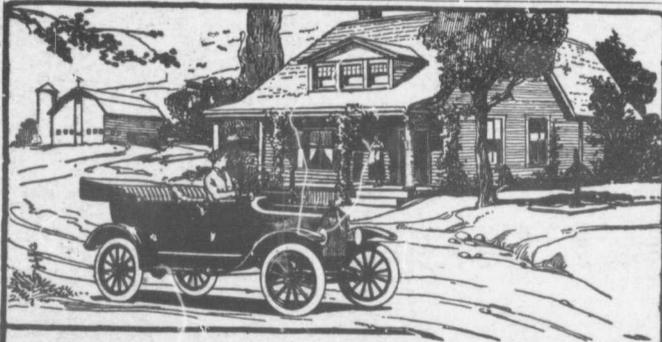
would answer the purpose and give fair satisfaction for the time being. With this in view, he built of light lumber, a front to the manger and partitions dividing it for each cow. It is fastened on a hinge and can be tipped back and fastened for cleaning out and feeding. It can then be dropped down when the cows are eating. In this way each animal gets her proper share and is unable to shove it beyond her reach. This arrangement may not be quite as beautiful to look at as if built of galvanized iron, but for anyone not wishing to go to the expense of the latter, it forms a satisfactory substitute.

In another barn in this neighborhood I saw an arrangement to prevent cows from lapping the water in the trough. In this case the trough was

a continuous one and was covered with a hinged lid, which was fastened down except for cleaning out. In front of each cow in the lid was a small trap door, which the cow could raise when she wanted a drink, but which could only open a certain distance and immediately she was through, drinking it fell back in place again.

IF I live to be another year older I am going to have a litter carrier for cleaning out this stable. Such were the words of Mr. J. W. Monk of Springfield, Ont., one day last winter as I watched him navigate a loaded wheelbarrow across the barnyard and "walk the plank" up onto the manure pile. It brought vividly to my recollection many times when I too

had performed that same stunt and also other times when my dexterity as a tight rope walker was not quite equal to the occasion, particularly times when the plank was slippery, the load heavy, and the result a most ungraceful high dive into the contents of the wheelbarrow. On such occasions the thought would not look well in print. But who is there among farm raised men who has not had that same experience? The training in self restraint obtained by such instances is perhaps the reason why so many of our farm boys are great, but then it also may be one of the reasons why so many of our great men did not remain on the farm. We are glad to note, however, that the wheelbarrow for this particular use is gradually giving place to more modern methods.



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FARM CHATS

Oat Straw

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HERE is a story told of an old chieftain who drove a very nice horse. It was spring, and the horse looked fat and sleek. "Fine-looking horse, Mr. Sprotte; you must feed him well!" "Oh no; nothing much but oat straw"—and then he added—"and very poorly threshed at that." A great many results published on the feeding of straw are apt to mislead us, especially in Maritime farmers. We are apt to forget that the straw referred to usually is wheat straw, and that, too, from the West. I have watched the sheep fed on oat straw. They like the tips and finer parts, particularly if it is hand threshed, while they refuse wheat straw altogether. As to the cows, unless they are very liberally fed in their mangers, they will eat up their oat straw bedding. So now, when I bed the cows I put a little extra straw and leave it up near their heads, so they can help themselves if they feel like it.

The pigs, too, seem to eat quite a lot of it. As to the oat chaff and mow sweepings, these, with turnips pulped, have helped out the grain bin wonderfully.

Three winters ago we wintered all our non-milking cattle on oat straw and pulped turnips. Sometimes the straw was cut and sometimes not. It sounds like cruelty, but we only watered that stock every other day. Their drink was in the turnips, and I have been told of some who watered only once a week. With apparatus and time, I am persuaded that the diet would have been better had the straw been cut and mixed with the pulped turnips, and left to melt for 24 hours. So fed, oat straw, it seems to me, ranks pretty near to ordinary hay, and the straw and turnips seem to fit each other. I am afraid we are valuing our oat straw too much merely as bedding. It is a grand filler when mixed with roots.

Calf Rearing in Brief

FEEDING the cow well before calving insures a strong, healthy calf. The best time to wean the calf is after it takes the first milk. Early weaning makes it easier to teach the calf to drink.

Everything about the calf should be scrupulously clean.

Milk from infected cows or from a creamery should be pasteurized before it is fed.

Calves should be fed sweet milk of a uniform temperature and should always receive a little less than they desire.

All calves should be fed regularly; very young calves should be fed three times a day.

At first the calf is fed whole milk, the quantity being gradually increased. Skim milk is substituted as soon as practicable, and if cheap is continued until the calf is six months old. Ordinarily the maximum quantity of skim milk that can be fed economically is 20 lbs. a day. When the calf is two weeks old, grain and high, clean hay should be offered; the quantity fed should be increased as the calf's appetite demands.

Milk substitutes are not equal to milk, but give fair results when used with care.

Quarters must be clean and dry, with plenty of bedding.

Water is necessary for calves. Marks for identification should be put without disfiguring the animal.

Calf diseases are largely the result of filth and carelessness. Prevention is cheapest and best.

Young dairy stock should have all

the hay they will eat, and grain in proportion to weight.

Fall calving usually gives best results.

The young bull should have an abundance of feed, plenty of exercise, and not be allowed too heavy service.—U. S. D. A.

Prevent Fires

FIRES will occasionally break out in the farm buildings, and one should be prepared to fight them. One of the first things needed is usually a ladder, so as to get upon nearby buildings to protect them from sparks, or to get up on the building afire, either to put it out or to remove persons or property. A good fire extinguisher can often be used in putting out a fire before it gets too well started. Water is a good extinguisher, if there are enough people around so that enough water can be put on. This will also mean that there be a tank full of water to start with and a number of pails.

Having the buildings, a fair distance apart and keeping straw and rubbish away from barns, sheds and granaries, will make it easier to keep a fire from spreading.

It is especially important now that fires be guarded against when all material, labor and energies should be devoted to winning the war.

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Letters to the Editor

A Knock for Daylight Saving

Editor, Farm and Dairy.—I presume that my position is the position of many other farmers. My only son who is able to help me is now called up by the military draft at the age of 21 and as I am not in a position to hire help, I will have to leave the work undone. I am at present working 18 hours a day, trying to produce foodstuffs, but I find myself hampered on every side. Some wise men, for instance, stating that they desire to increase production have changed the time so that the farmers who hire men by the day will not get any good out of them in the forenoon in harvest; and any man who is farming knows that he can't cut grain or hay or draw it in when it is wet with dew. How is this going to help production? The forenoon, under the present system, is lost and the best part of the evening, to the man that hires by the day. The farmer who has children going to school, who used to be able to help milk cows and do some chores in the morning, have no time now as it takes them all their time to get ready for school and the mother has to milk twice.—C. E., Haron Co., Ont.

Does the Farm Need an Auto?

Editor Farm and Dairy: Prince Edward Island has been much talked of in the other Provinces and in the States because it so long refused to allow the automobile to run on its roads. Was the Island Province "old fashioned" and "behind the times" in not permitting the autos to run? I, for one, do not think so. For I am firmly of the opinion that the farmer—at least the farmer of this island—does not need the automobile at all. Had I, myself, an auto I would not have the time nor the leisure to run it and use it. And, as they say, there are others—and many others—like myself, who would not have the time or leisure to run an auto. Besides, an auto is a big venture for the ordinary farmer.

An auto costs as much as a half-dozen grain binders. If we except the Ford car, and most farmers find one grain binder a big enough purchase with two or three falls to pay for it, it is a matter of fact, few farmers can run a grain binder outright here. The great majority are owned by two adjoining farmers on shares. The binder is, apparently, for our farmers too big an investment for one farmer. Then, how about the auto, costing so much more? and I have not heard that they are selling on the instalment plan like grain binders.

In these strenuous times pleasure cars are not an indispensable implement on the farm. With the great scarcity of help on our farms now, every minute of the farmer's time is taken up at the multifarious work necessary to be done, and he has practically no time to even go buggy-driving, much less autoing. The fact is this, so far as conditions here are, the farmer has actually no time for pleasure with his car. He goes to town as seldom as possible, using the telephone in many cases to transact necessary business.

Farmers' Wishes Slighted.

We here, however, have the auto now. By some adroit work of the auto people they managed to sneak in on our roads, notwithstanding the fact that at the last meeting of the Provincial Farmers' Institute, representing all parts of the island, a unanimous resolution was passed prohibiting the automobile from using our roads. But, as in everything else, the farmer's voice was unheeded by the Government, and they have in the past six months opened nearly all of our roads to the auto. It is a crying

shame in a province like this, 80 per cent. agriculture, with no towns to speak of, that the people—the farmers, 80 per cent. of them—have no say in the ruling of the country. Legislation favoring town sports, as against the interests and will of the farmer, is passed. Will the farmer ever wake up? Will he forget all about this by the next election? What a time is this, when the country is being bled white of men and money to carry on the terrible war, to be investing money lavishly in costly pleasure cars, only to think that every cent, every citizen who may possess the price of a car would rather buy war bonds, or assist the patriotic fund, and thus help the country to win the war. Since the auto was introduced here just against our women are self-prohibited from using the roads. Horses are terribly frightened of the autos, and there have been numerous narrow escapes every day. Our women folk don't go to town any more. The autos are a good thing for the departmental stores, like Eaton's. Women, instead of risking their lives on the road going to town, now stay at home and send the money away for their needs.

It has always been a wonder to the writer why our machinery, in a country place like this, don't use their influence in barring the auto, for the auto keeps a lot of trade from the merchant. A case in point: A neighbor woman had a wheelbarrow trader at our town, eight miles distant. Since the autos began to use the roads this woman gave up her lucrative trade, not caring to take the risk of going to town for meeting an auto. This is but one case.—J. A. Macdonald, Prince Co., P.E.I.

Wheat in Mixed Grains

Editor, Farm and Dairy.—I am in favor of Union Government, and do not wish to criticize its doings too severely, yet I am at a loss to understand an order which was passed at Ottawa a few days since, restricting the feeding of wheat to farm stock other than poultry and making it illegal to do so. I have wondered what our farmers are to do with our mixed crop of wheat and oats already sown on hundreds and thousands of acres throughout Ontario. The millers are forbidden to grind this mixed grain for us and even if they would grind it, we are not allowed, according to the present ruling, to do anything other than poultry. Surely the Government will reconsider this measure and not tie the hands of our farmers.

Anyone who has any knowledge of farming knows that wheat sown with oats adds greatly to its feeding qualities and we who have practiced sowing 25 per cent. wheat with oats think we get the wheat over and above what the same acreage would produce in oats if sown alone. If the farmer were allowed a free hand to feed of his own production of mixed grains and could get his implements from across the border free of duty, such as we need to use in our ordinary farming, I feel that it would be a great stimulus in encouraging the farmers to do all they possibly can in the growing of such crops. It has been needed to send our men far as their soil and location are adapted to the production of such crops.—E. Terrill, Northumberland Co., Ont.

On the trip to France the rough going produced that feeling among troops which made it a matter of absolute indifference to them what the world came to an end, just so it came quick. On an army transport was a steward named Terry. Before the mess call sounded, Terry always visited the different staterooms, knocking the door ajar he would say to the officers: "Gentlemen, do you wish me to throw your luncheon overboard, or will you do it yourselves?"

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AND the people gather the people his day—Ex- the day's portion was the rule for man's working. It is the dealings of children. A clear beauty and arrangement is a understanding himself utterly confidence and po brightly through her earthly course once asked by a with a serious answer shall I have answer. "Only a taught the patient it was the same corded for His pe before: The day's

It was, without to this and in me that God's grace through the day's portion in man's unbroken day's hamied and over changed day's portion and re- child, who as- her's of a book, the lesson for the real is utterly be- book were given would be with ma divisions in time, divided into frag- ment; only the ca- each day have to day's portion in of the night fit- each start with the mistakes of the ad, its lessons imp- only each day to one short day, and single life takes without the sense their weight over

Most sweet is the be derived from of grace of Many a with the thought- able to gather and needed for all its through such a bar- has never learn- comfort there is day's portion for it takes away all the not completely. single day—tomorrow as a question: What she that during all the hat to contend with temptations or t- man will always one that needest, so ask. Manna, strength, is given faithfully to fill the only security for th- and joy, and full heart the part thou form. His presence it is day with in- er thou canst enter Him too.

How great the truth teaches us to single day? We are look at life as a select the little to the single days do the whole, and that single day depends on the whole. One broken is the chain takes more than any One day but influen- makes its working in one day but in months or years of



SHOW good services I Sweet remembrances will grow from them.
—Madame de Staël.

The Heart of the Desert

(Continued from last week.)

RHODA turned away. The line of march formed quickly. Porter led Carlos closed the rear. DeWitt and Newman rode on either side of Rhoda. They were not long in reaching the trail down the canon wall. Here they paused, for the rough ascent was impossible for the horses. The men looked questioningly at Rhoda, but she volunteered no information. She believed that Kut-le had left the camp at the top long since. If for any reason he had delayed his going, she knew that he had watched every movement in the white camp and could protect himself easily.

"We can leave Carlos with the horses," said Porter, "while we climb up and see who's at the head."
Rhoda dismounted, still silent, and followed Porter and DeWitt up the trail, Jack following her. The trail had been difficult to descend and was very hard to ascend. There was a dumb purposefulness about the men's movements that sickened Rhoda. She had seen too much of men in this mood of late and she feared them. She knew that all the amenities of civilization had been stripped from them and that she was only pitting her feeble strength against a world-old instinct.

Her heart was beating heavily as they neared the top, but not from the hard climb. She was injured to difficult trails. There was a sheer pull, shoulder high, at the top. The four accomplished it in one breathless group, then stood as if paralyzed.

Sunlight flickered through the pines. Molly and Cesca prepared the trail packs. And Kut-le sat beside the spring, eyeing his visitors grimly. He looked very cool and well groomed in comparison to his trail-worn adversaries.

DeWitt pulled out his Colt.
"I think I have you, this time," he said.
"Yes?" asked Kut-le, without stirring. "And what are you going to do with me?"

"I'm going to take about a minute to tell you what I think of you, and give you another minute in which to offer up some sort of an Indian prayer. Then I'm going to shoot you!"

Kut-le glanced from DeWitt to Rhoda, thence to Porter and Newman. Porter's under lip protruded. Jack looked sick. Both the men had their hands on their guns. Rhoda moistened her lips to speak, but Kut-le was before her.

"Are you a good shot, DeWitt?" he asked. "Because I know that Jack and Porter are sure in their aim."

"You'll never know whether I am or not," replied DeWitt. "You'd better be thankful that we are shooting you instead of hanging you, as you deserve, you cur! You'd better be glad you're dying! You haven't a white friend left in the country! All your ambition and hard work have come to this because you couldn't change your Indian hide, after all! Now then, say your prayers! Rhoda, cover up your eyes!"

Kut-le rose slowly. The whites noticed with a little pang of shame

that he made no attempt to touch his gun, which lay on the ground beside him.

"You'd better let Jack and Billy shoot with you," he said quietly. "You won't like to think about the shot that killed me afterwards. It isn't nice, I've heard, the memory of killing a man."

"I'm shooting an Indian, not a man!" said DeWitt. "Say your prayers!"

The spell of fear that had paralyzed



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Rhoda snapped. Before Jack or Billy could detain her she ran to DeWitt's side and grasped his arm.

"John! John! Listen to me, one moment! Look at me! In spite of all, look, see what he's made of me for you to reap the harvest! Look at me! I beg of you, do not shoot him! Let him go. Make him promise to leave the country. Make him promise anything! He keeps promises because he is an Indian! But if you have any love for me, if you care anything for my happiness, don't kill Kut-le! I tell you I will never marry you with his blood on your hands!"

A look curiously hard, earnestly suspicious, came to DeWitt's eyes. Without lowering his gun or looking at the girl, he answered:

"You plead too well, Rhoda! I want this Indian to pay for more torture of mine than you can dream of! Get back out of the way! Are you ready, Kut-le?"

Rhoda's slender body was rigid. She moved away from DeWitt until she could encompass the four men in her glance. With arms folded across her arching chest she spoke with a richness in her voice that none of her hearers ever could forget.

"Remember, friends, you have forced me to this! You had me safe, but you thought more of revenge than

you did of my safety! John, if you kill Kut-le you will kill the man that I love with all the passion of my soul!"

DeWitt gasped as if he had been struck. Newman and Porter stared dizzily. Only Kut-le stood composed. His eyes with the old look of tragic tenderness were fastened on the girl.

"Are you going to shoot him now, John?"

"Rhoda!" cried DeWitt fiercely. "Rhoda! Do you realize what you are saying?"

"Yes," said Rhoda steadily. "I realize that a force greater than rage or pride, greater than self love, greater than intelligence or fear, is gripping me! John, I love this man! He and I have lived through experiences together too great for words. He had me in the hollow of his hand but he sent me back to you, his enemy. You say that you love me. But you would not listen to my pleading, you would not grant me the only favor I ever asked you, the granting of which could not have harmed you."

"Her listeners did not stir. Rhoda moistened her lips.

"Kut-le— Think what he sacrificed for me. He gave up his dearest friends and his country and risked his life for me. And then when he thought the sacrifice would prove too great on my part, he gave me up! I ask you to give him his life, for me. Because,

"That is for Kut-le to say," answered Rhoda.

"Rhoda," said Jack, and his voice shook with earnestness. "Listen! Listen to me, your old playmate! I know her fascinating. Kut-le is a girl, a girl, he's been my best friend for years! And in spite of everything, he's my friend still. But, Rhoda, I won't do that for you. But as an Indian; and after the first, that must always come between you! Think again, Rhoda! I tell you, I won't do it!"

Rhoda's voice still was clear and high, still bore the note of exaltation. "I have thought, again and again, Jack. There could be no end to the thinking, so I gave it up!"

Kut-le's eyes were on the girl, in scrutiny and calm as the desert heat, but still he did not speak.

Billy Porter wiped his forehead again and again on a cloth that bore no resemblance to a handkerchief.

"I can't put up any kind of an argument. All I can say is I don't see how any one like you could do it. Was Rhoda! Just think! His folk's Indians, dirty, blanket Indians! They scratch themselves from one day's misadventures to the other. They will never marry, too! They'll be hanging round all the time. I'm not a married man all I've noticed when you marry a man, you generally marry his whole darn family. I—oh, there's a man talking to her! Let's take her away by force, Jack!"

Rhoda caught her breath and instinctively moved toward Kut-le. But Jack did not stir.

"No," he answered; "I've done all the chasing and trying to kidnap that I care about. But, Rhoda, once set for all I tell you that I think you are doing you and yours a deadly wrong."

"Perhaps I am," replied Rhoda steadily. "I make no pretense of being a girl. Any rate, I'm going to stay with Kut-le."

"For heaven's sake," Rhoda, cried Jack, "at least come back to the ranch and let Katherine give you a wedding. She'll never forgive me for leaving you this way."

Porter turned on Jack savagely. "Look here!" he shouted. "Are you crazy too! You're talking about her marrying this Indian! He's a dead-end. Jack spoke through his teeth obstinately.

"I've sweated blood over this thing as long as I propose to. If Rhoda wants to marry Kut-le, she's her business."

"Don't I!" asked Rhoda steadily. "Have I fought my fight without coming to know the risk? Don't I know what awaiting me means, and rejection, and hunger for my own life, and this which has come to me is stronger than all these. I love Kut-le, John, and I ask you to give his life to me!"

Still Kut-le stood motionless, as did Jack and Porter. DeWitt, with his eyes fixed on Rhoda's, slowly, very slowly, slipped his Colt back into his belt. For a long moment he gazed at the wonder of the girl's calm face. Then he passed his hands across his eyes.

"I give up," he said quietly. "Then he turned, walked slowly to the canon edge, and clambered deliberately down the trail."

Jack and Billy stood dazed for a moment longer, then Porter cleared his throat.

"Miss Rhoda, don't do this! Now don't you! Come with us back to the ranch, for I must tell you get away from this Indian influence. Come back and talk to Mrs. Newman. Come back and get some other woman's consent! For God's sake, Miss Rhoda, don't do this, I beg of you."

"When Katherine knows it this way," said DeWitt, "I will understand and agree with me," replied Rhoda. "Jack, try to remember everything I said, to tell Katherine."

"I tell her," cried Jack. "Will you tell her yourself? What are you planning to do?"

"That is for Kut-le to say," answered Rhoda.

"Rhoda," said Jack, and his voice shook with earnestness. "Listen! Listen to me, your old playmate! I know her fascinating. Kut-le is a girl, a girl, he's been my best friend for years! And in spite of everything, he's my friend still. But, Rhoda, I won't do that for you. But as an Indian; and after the first, that must always come between you! Think again, Rhoda! I tell you, I won't do it!"

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(Continued on page 20.)

The Upward Look

Day by Day

AND the people shall go out and gather the portion of a day in his day.—Ex. 16, 4 (marg.).

The day's portion in its day; Such was the rule for God's giving and man's working in the ingathering of the manna. It is still the law in all the dealings of God's grace with His children. A clear insight into the beauty and application of this arrangement is a wonderful help in understanding how one, who feels himself utterly weak, can have the confidence and perseverance to hold on brightly through all the years of his earthly course. A doctor was once asked by a patient who had met with a serious accident: "Doctor, how long shall I have to be here?" The answer, "Only a day at a time," taught the patient a precious lesson. It was the same lesson God had recorded for His people of all ages long before: The day's portion in its day.

It was, without doubt, with a view to this and to meet man's weakness, that God graciously appointed two changes of day and night. If time had been given to man in the form of one long unbroken day, it would have exhausted and overwhelmed him; the change of day and night continually renews and recharges his powers. As a child, who easily makes himself master of a book, when each day only the lesson for the day is given him, would be utterly hopeless if the whole book were given him at once; so it would be with man, if there were no divisions in time. Broken small and divided into fragments, he can bear them; only the care and the work of each day have to be undertaken—the day's portion in its day. The rest of the night fits him for making a fresh start with each new morning; the mistakes of the past can be avoided, his lessons improved. And he has only each day to be faithful for the one short day, and long years and a long life take care of themselves, without the sense of their length or their weight ever being a burden.

Most sweet is the encouragement to be derived from this truth in the life of grace. Many a soul is dispirited when he thought as to how it will be able to gather and to keep the manna needed for all its years of travel through such a barren wilderness. It has never learnt what unspeakable comfort there is in the word: The day's portion for its day. That word takes away all care for the morrow and completely. Only to-day is the manna for the morrow like Father's. The question: What security hast thou that during all the years in which thou hast to contend with the coldness, or temptations, or trials of the world, thou wilt abide in Jesus? Is one thou needest, yes, thou mayest not ask. Manna, as thy food and strength, is given only by the day; faithfully to fill the present is thy only security for the future. Accept, and enjoy, and fulfil with thy whole heart the part thou hast this day to perform. His presence and grace encourage to-day will remove all doubt whether thou canst entrust the morrow to Him too.

How great the value which this truth teaches us to attach to each single day! We are so easily led to look at life as a great whole, and to neglect the little today, to forget that the single days do indeed make up the whole, and that the value of each single day depends on its influence on the whole. One day lost is a link broken in the chain, which it often takes more than another day to mend. One day but influences the next, and makes its keeping more difficult. Yes, one day lost may be the loss of what months or years of careful labor had

secured. The experience of many a believer could confirm this.

Let each day have its value from your calling to abide in Christ. As its light opens on our waking eyes, accept it on these terms: A day, just one day only, but still a day, given to abide and grow up in Jesus Christ. Whether it be a day of health or sickness, joy or sorrow, rest or work, of struggle or victory, let the chief thought with which you receive it in the morning thanksgiving be this: "A day that the Father gave; in it I may, I must become more closely united to Jesus." As the Father asks, "Can you trust me just for this one day to keep you abiding in Jesus, and Jesus to keep you fruitful?" you cannot but give the joyful response: "I will trust and not be afraid."



Good Water, Always Cold.

This tank sits in the corner of the kitchen in the home of Mr. Peter Harley, described in last week's issue of Farm and Dairy. It is fed with clear, cold spring water pumped by a hydraulic ram. The water is always running.—Photo by an editor of Farm and Dairy.

The day's portion for its day was given to Israel in the morning very early. The portion was for use and nourishment during the whole day, but the giving and the getting of it was the morning's work. This suggests how greatly the power to spend a day aright, to abide all the day in Jesus, depends on the morning hour. If the first-fruits be holy, the lamp is holy! During the day there come hours of intense occupation in the rush of business or the throng of men, when only the Father's keeping can maintain the connection with Jesus unbroken. The morning manna fed all the day; it is only when the believer in the morning secures his quiet time in secret to distinctly and effectually renew loving fellowship with his Saviour, that the abiding can be kept up all the day. But what cause for thanksgiving that it may be done! In the morning, with its freshness and quiet, the believer can look upon the day. He can consider its duties and its temptations, and plan them through beforehand, as it were, with his Saviour, throwing all upon Him who has undertaken to be everything to him. Christ is his manna, his nourishment, his strength, his life; he can take the day's portion for the day, Christ as his for all the needs the day may bring, and go on in the assurance that the day will be one of blessing and of growth.

And so each day separately, all the day continually, day by day successively, we abide in Jesus. And the days make up the life: what once appeared too high and too great to attain, is given to the soul that was content to take and use "every day his portion" (Ezra iii, 4), "as the duty

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Pictures of livestock are not only interesting to keep, but frequently such pictures serve to close a sale; pictures have frequently settled live fence disputes; pictures showing the growth of trees, the effects of this and that kind of pruning often prove invaluable to the orchardist.

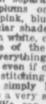
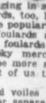
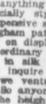
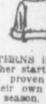
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of every day required." Our daily life becomes a wonderful interchange of God's daily grace and our daily praise: "Daily He loadeth us with His benefits," that I may daily perform my vows." We learn to understand God's reason for daily giving, as He most certainly gives, only enough, but also fully enough, for each day. And we get into His way, the way of daily asking and expecting only enough, but most certainly fully enough, for the day. We begin to number our days not from the sun's rising over the world, nor by the work we do or the food we eat, but by the daily renewal of the miracle of the manna,—the blessedness of daily fellowship with him who is the Life and the Light of the world. The heavenly life is as unbroken and continuous as the earth; the abiding in Christ each day has for that day brought its blessing; we abide in Him every day, and all the day. Lord, make this the portion of each one of us.

Note.—A selection from Rev. Andrew Murray's book "Abide in Christ." For the purpose of publishing a number of these in our Upward Look column and trust that they will be found very helpful. Anyone who desires to secure this book should send \$1.00, may do so through us for the sum of 80 cents.

Training the Children

No. 1.

Unceasing Activity

THE training of children in the home during the early years of life is most important. While we believe it is the earnest desire of many mothers who live in the country to train their children to the best of their ability, they had little time to work out original ideas for training of the child mind. It is our purpose to publish a number of articles containing suggestions for training little children, which have been written by mothers who have been kindergarten teachers and whose experience may therefore be presumed to be of value. We trust that these articles may contain ideas which will be found helpful by busy mothers who are looking for information of this kind.

The first article is by Mrs. Elvira Hyatt, who deals briefly with one of the first problems of the mother—the unceasing activity of her small children. Mrs. Hyatt says:

"One of the first problems which confront the mother is the unceasing activity of her small children. From the moment they can creep, they are 'doing something' every minute of the day. We simply cannot bid these restless creatures 'keep still,' for activity is the law of growth. Instead, we must learn to keep them busily and happily employed, and to substitute right activities for wrong ones. Constant repression makes a restless and unhappy child. We must learn to recognize abundant energy as good, and to turn it into right channels.

"Bad and mischievous children are simply the results of negative methods. It is not enough to say, 'Run away and play,' but a definite occupation should be suggested. The positive unending word is to say, 'Do this,' instead of 'Don't do that,' and if one form of employment must be taken away, something else should be suggested.

"A recent Italian educator has declared that unnecessary restriction in a child's life is a crime. There must be rules, of course, and children must learn to obey, but much friction can be eliminated by avoiding unnecessary commands. There should be few rules, but these should be firmly adhered to. It is infinitely better not to give a command than to let a child evade it. The habit of teasing for a thing will never develop, if this

course is faithfully followed. Children brought up without rules or system are restless and unhappy, but, on the other hand, a blind obedience should not be insisted upon too long. "The child can begin to give early to reason for himself in small things. Eater the moral fibre must be developed which will enable him to choose to do the right thing because it is right, and to recognize and obey the still, small voice within himself. A desire for right conduct must be awakened. The will does not begin to grow until a definite choice can be made. Strong wills are good, and a parent has no more right to break a child's will than to break his arm or leg. To secure the will's request is just, and whenever possible avoid a clash of wills. Forced obedience, or obedience gained through fear, weakens the child's will power and fosters cowardice and deceit."

Growing Oriental Poppies

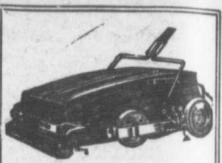
HOW many of our flower lovers have tried growing Oriental poppies with good success? Probably some have tried and have not been very successful, and as it is nearing the season when it is the best time to plant them, the following suggestions may be of help: Oriental poppy seed may be sown out of doors at any time from the third week in May until the middle of August; the end of May or early June being the best time. Sow the seed in rather sandy soil in a shallow box not over three inches deep; an empty hatbox with several or eight half-inch holes bored through the bottom for drainage is suitable. One part sand, one part fine leaf mold (black soil from the bush) and about six parts of loamy potting soil would make a good soil for the seed. Press the soil fairly firm, sow the seed broad cast, and cover the seed very lightly with finely-sifted soil, so as to cover it with barely one-eighth of an inch of soil. Place the box where the very hot sun does not strike on the box. A small piece of cheesecloth spread over will be sufficient shade, or the box may be placed under a tree, if not too dense and shaded. Too much shade must not be given. Put a piece of wire mesh (sacking) on the surface of the soil before watering the seed, to prevent rinsing. Do not shade the plants after they have developed two or three leaves. The critical time is just when the seed is germinating, and the plants are coming through. An hour of hot sun then would kill the young plants.

Set plants out in the border the end of August, or not later than second week in September. A lot of all hardy border perennial plants may be sown out of doors early in June in boxes or in the open ground. Oriental poppies do not transplant well, hence the need of sowing the seed in shallow boxes, as it prevents deep rooting. Oriental poppy seeds may be started indoors in March or April, and transplanted out of doors later on.

Life's Symphony

By J. H. Hunter.

Just to be kind, to be tender and true,
Just to be happy the whole way through
To lighten the burden for some one
For never again shall I pass this way.
Just to remember that God's in His
heavens.
Just to be thankful for all He has given.
Just to give beauty for ashes away,
For never again shall I pass this way.
Just to love right and hate nothing
but wrong.
Just to make life one "grand sweet
song," the best we can produce.
To lie down in peace at the close of
life's day,
And wake up to meet Him who once
passed this way.



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BOOK DEPT., FARM AND DAIRY PETERBORO, ONT.

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MRS.—Lady's Wo

Ginghams, Foulards and Voiles Proving Favorites

Farm and Dairy patterns shown in these columns are especially prepared for our Women Folk. They can be relied upon to lack the latest models and include the most modern features of the paper pattern. When sending your order please be careful to state bust or waist measure for adults, for children, and the number copy. Price of all patterns to Our Women Folk, 10 cents each. Address orders to Pattern Dept., Farm and Dairy, Peterboro, Ont.



PATTERNS in silks and cottons that rather startled us last summer have held their own very decidedly through another season. As we have pointed out before, styling in the form of ginghams is especially stylish, and some of our most expensive silks come in quite ordinary gingham patterns. One dress which we saw on display a few days ago was of the ordinary small checked gingham pattern in silk material and while we did not inquire what price was being asked, we venture to say it was not small. So anyone who really desires to be in the height of fashion can do so by indulging in silk gingham dress goods. Foulards, too, have been receiving constant popularity, but we are told that cotton foulards are hard to secure and the silk foulards are very expensive. A soft, silky mercerized cotton foulard should be more serviceable and practical for most of us than the more expensive silk.

Colored voiles are very fashionable, either for separate blouses, smocks with long puffed sleeves or for complete dresses. Yellow, pink, blue or green are some of the popular shades and are usually trimmed with white, or white blouses trimmed with one of the above colors are also sold. Everything seems to have a touch of color, even if only a few French knots, weds in simply launders and for this reason is a very satisfactory summer material. We can have a sigh of relief that we do not now have to fuss over dirty starched tailored blouses in warm weather.

362—Girl's Dress.—Now that the warm days are coming, the little girls who go off to school each morning, will be anxious to have their new summer dresses. The one here shown has a very suggestive, but less showy dressmaker's look for a neat style of school dress. Five sizes: 6, 8, 10 and 12 years.
 363—Lady's Work Dress.—Comfort and

attractiveness are two points worthy of careful attention when selecting a pattern for a work dress. How does this one appeal? Seven sizes: 34 to 46 inches bust measure.

2140—Lady's Dress.—A combination of materials is here shown and some of the nicest for the lower portion. The three-piece outfit illustrated will no doubt prove valuable to many of our home dressmakers who are kept busy fashioning clothes for the little tots. Five sizes: 2, 3, 4, 5 and 6 years.

2483—2581—Lady's Costume.—The pepum or tunic effect is here in evidence. If desired the under portion could be made of contrasting material, or the skirt might be fashioned so that it could be worn separately as shown in the small view. This design calls for two patterns, 10 seven sizes: 34 to 46 inches bust measure and the skirt from 22 to 33 inches waist measure.

2482—Lady's Shirt Waist.—The shirt waist always finds a place in the wardrobe, and herewith is a good style to follow out. Either long or short sleeves may be used, although long sleeves seem to have the preference. Seven sizes: 34 to 46 inches bust measure.

3068—Girl's Dress.—For comfort and simplicity this frock is especially adaptable. If desired embroidered material could be used instead of flowered goods. Five sizes: 4, 6, 8, 10 and 14 years.

2464—Lady's Skirt.—A skirt such as this one would go nicely with the separate blouse shown on this page. The belt and pockets are the only trimming required. Seven sizes: 28 to 34 inches waist measure.
 2462—Sports or Outing Dress.—The usefulness of this dress is suggested by its name and should be found useful on many occasions throughout the warm weather. Three sizes: 16, 18 and 20 years.



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MAIDEN
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MAPLE BUDS

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A-59 Name Reg.—Design Pat.

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Farm and Dairy is in an excellent position to champion the cause of the farmer in Canada, because it is owned and controlled exclusively by farmers.

The Heart of the Desert

(Continued from page 16.)

ness. I always did like Kut-le and I always shall. I've done my full duty in trying to get Rhoda back. Now that she says that she cares for him, it's neither your nor my business—nor DeWitt's. But I want them to come back to the ranch with me and let Katherine give them a nice wedding.

"But—but—" spluttered Porter. "Then be stopped by my good sense of Jack's attitude suddenly came home to him. "All right," he said sullenly. "I'm like DeWitt. I pass. Only—if you try to take this Injun back to the ranch, he'll never get there alive. He'll be lynched by the first bunch of cowboys or miners we strike. Miss Rhoda nor you can't stop 'em. You want to remember how the whole country is worked up over this!" Rhoda whitened.

"Do you think that too, Jack and Kut-le?" For the first time, Jack spoke to Kut-le. "What do you think, Kut-le?" he said.

"Porter's right, of course," answered Kut-le. "My plan always has been to slip down into Mexico and then go to Paris for a year or two. I've got enough money for that. I've always wanted to do some work in the Sorbonne. By the end of two years I think the Southwest will be willing to welcome us back."

Nothing could have so simplified the situation as Kut-le's calm reference to his plans for carrying on his profession. He stood in his well-cut clothes, not an Indian, but a well-bred, clean-cut man of the world. Even Porter recognized this, and with a sigh he resigned himself to the inevitable.

"You folks better come down to the monastery and be married," he said. "There's a padre down there."

"Geel! What'll I say to Katherine!" roused Jack.

"Katherine will understand," said Rhoda. "Katherine always loved Kut-le. Even now I can't believe that she has altogether turned against him."

Jack Newman heaved a sigh. "Well," he said, "Kut-le, will you and Rhoda come down to the monastery with us and be married?" His young voice was solemn.

"Yes," answered Kut-le, "if Rhoda is agreed."

Rhoda's face still wore the look of exaltation. "I will come!" she said.

Kut-le did not let his glance rest on her, but turned to Billy.

"Mr. Porter," he said courteously, "will you come to my wedding?"

Billy looked dazed. He stared from Kut-le to Rhoda, and Rhoda smiled at him. His last defense was down.

"I'll be there, thanks!" he said.

"There is a side trail that we can take my horses down," said Kut-le.

They all were silent as Kut-le led the way up the side trail and by a circuitous path to the monastery. He made his way up through a rude, grass-grown path to a cloistered front that was in fairly good repair. Here they dismounted and waited while Kut-le pulled a long bell-rope that hung beside a battered door. There was not long to wait before the door opened and a white-faced old padre stood staring in amazement at the little group.

Kut-le talked rapidly, now in Spanish and now in English, and at last the padre turned to Rhoda with a smile.

"And you?" he asked. "You are quite willing?"

"Yes," said Rhoda, though her voice trembled in spite of her.

"And you?" he asked the padre, turning to Jack and Billy.

The two men nodded.

"Then enter!" said the padre.

And with Cosca and Molly bringing up the rear, the wedding party followed the padre down a long adobe hallway across a courtyard where palms still shaded a trickling fountain, into a dim chapel, with grim adobe walls and pews unadorned and worn by centuries of use.

The padre was excited and pleased. "If," he said, "you will sit, I will call my two choir-boys who are at work in the olive orchard. They are not far away. We are always ready to hold service for such as may wish to attend."

He disappeared through the door of the choir loft and returned shortly, followed by two tall Mexican half-breeds, clad in priceless surplices that had been wrought in Spain two centuries before. They lighted some meager candles before the altar and began their chant in soft, well-trained voices.

The padre turned and waited. Kut-le rose and, taking Rhoda's hand, led her before the aged priest.

To the two white men the scene was unforgettable. The dim old chapel, scarce of what could tell what heartburnings of desert history; the priest of the ancient religion; standing before him the two young people, one of a vanishing and one of a conquering race, both standing in the perfection of their beauty and of their age, on the two wide-eyed squaws with aboriginal wonder in their eyes.

It was but a moment before Kut-le had taken a ring on Katherine's finger; but a moment before the priest had pronounced them man and wife.

As the two left the priest, Jack kissed Rhoda solemnly twice.

"Once for Katherine," he said, "and once for me. I don't understand much how it all has come about, but I know Kut-le, and I'm willing to trust you to him."

"Kut-le gives Jack a clear look.

"Jack," he never forgot that speech. If I live long enough, I'll repay you for it."

"And an Indian keeps his promises," said Rhoda softly.

Billy Porter was not to be out-gone.

"Now that it's all over with, I'll say that Kut-le is a good fighter and that you are the handsomest couple I ever saw."

Kut-le chuckled.

"Cosca, am I such a heap fool?" Cosca sniffed.

"White squaw no good! They— But Molly behaved Cosca aside.

"O Molly! Molly!" cried Rhoda. "You're a woman! I'm glad you were here!" And the men's eyes blurred a little as the Indian woman hugged the white girl to her and crooned over her.

"You no cry! You no cry! When you come back, Molly come to your house, take care of you!"

After a moment Rhoda wiped her eyes, and Kut-le, who had been giving the two a long look, saw that the fellow eyed with joy, took the girl's hand gently.

"Come!" he said.

At the door the others watched them as they rode away. The two set their horses with the grace that comes of long, hard trails.

"Maybe I've done wrong," said Jack. "But I don't feel so. I'm awful sorry for DeWitt."

"I'm awful sorry for DeWitt," agreed Porter. "But I'm sorer for myself. I'm older than DeWitt a whole lot. He's young enough to get over anything."

When they had ridden out of sight of the monastery, Kut-le pulled in his horse and dismounted. Then he stood looking up into Rhoda's face. In his eyes was the usual look of exaltation that made hers wonderful. He put his hand on her knee.

"We're a long ride ahead of us," he

said softly. "I want something that I can't have on horseback."

Rhoda laid her hand on his.

"You meant it all, Rhoda? It was not only to save my life?"

"Do you have to ask that?" said Rhoda.

"No!" answered Kut-le simply. "You see I waited for you. I know that they would bring you back. And if you had not spoken, I would rather have died. I had made up my mind to that. O my love! It has come to us truly!"

Then, as if the flood, controlled all Rhoda's moods, had burst its bonds, Kut-le lifted Rhoda from her saddle to his arms and laid his lips to hers. For a long moment the two clung to each other as if they knew that life could hold no moment more sweet as this. Then they mounted and, side by side, they rode off into the desert sun.

THE END.



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Plans for Summer activity in these 7 cities who took part of her previous time in planting a few flower beds, may well come to good advantage if the life of the family, shared by passers-by.

Some people have a few flowers for extravagance that can be passed with. As a however, is this not a few boxes of few potted plants in large hole in the pocket on a long way toward the flower border along flowers as annual,

RESPORTS IN THE CANADIAN PACIFIC ROCKIES.

Basin, Lake Louise, Poudre and Glacier, are in the heart of the Canadian Pacific Rockies, and on the main line of the Canadian Pacific Railway.

Anything New in War Work ?

THE work done by Canadian women in order that this war may come to a successful ending—peace with victory—is nothing short of amazing. It is stupendous in its aggregate. Socks by the millions of dozens, hospital supplies in the same enormous quantities, comforts without stint, make a record of devotion and faithfulness never before equalled. It is comparatively easy to hand over one's plate or jewels no matter how highly they are valued if the cause for which they are sacrificed is a great one in life. It is easy to make a great sacrifice that comes all at once. But the sacrifice, the devotion that is literally measured by inches and inches is the thing that gives the mettle of the toilers.

Calamity of purpose has characterized the work and "keeping everlastingly at it" has crowned the work with success. When one examines into the kinds of work done one realizes afresh the wonderful devotion which has arisen, superior to a monetary gain. In peaceful days, would have held not even one group of workers for an entire year.

One line of work that seems desirable appears to have been taken up in Canada by only one body of workers. The Levaas Society composed of the women of Queen's University have done wonderfully in providing vermin-proof underclothing, acting on the suggestion of Miss Gordon, who is particularly interested in work done by English university women. The formula furnished by Miss Gordon was given in the British Medical Journal in May, 1917, by Captain Gunn, M.D., D.S.C., R.A.M.C.T. of Oxford.

Underwear is made of ordinary cheese cloth and dipped in a solution of 1½ ounces naphthalene and 1½ ounces of sulphur to one gallon of benzene or gasoline. They are heated out of this solution and hung up to dry when the gasoline evaporates, leaving the other ingredients in minute particles. These should not be shaken off. Fold the vests and wrap in grease-proof paper. These vests are worn next the skin and are not irritating, but afford an almost complete protection against vermin. Miss Gordon says: "Mrs. Gerrans, of Oxford, has made, dipped and sent to the front many thousands of these underwears and has received many grateful letters testifying to their remarkable and unique efficiency. No field comforts could be more welcome."

The dipping must be done out of doors, and on no account must be undertaken where there is an open fire or even a lighted match or cigar or cigarette. In cold weather the rapid evaporation of the gasoline will permanently injure the skin, and at all times some method should be devised for handling the cloth without coming into too direct contact with the gasoline. The making of these comforts in quantities offers profitable work for societies, and even the drapes of garments previously made should furnish an appreciable source of income to bodies engaged in raising war funds.

Plans for Summer Flowers

EVEN in these busy of strenuous activity on the farm, the housewife who sits a few hours of her precious time and utilizes it in planting a few flowers around the home, may well consider the time spent in good advantage. Not only do flowers add pleasure to the home life of the family, but they are admired by passersby.

Some people have an idea that buying flowers for planting is an extravagance that can be easily dispensed with. As a matter of fact, however, is this not an inexpensive luxury? A few boxes of annuals or a few potted plants do not make a very large hole in the pocketbook, and they go a long way toward giving satisfaction to all who view them.

For a border along a fence such flowers as cinnias, asters, stocks,

phlox, mignonette, dwarf nasturtiums and candytuft may be planted. These are probably the most satisfactory for cutting for table bouquets, although many others will help to give a good effect in the border.

Many people have a small border along the house or veranda. This will look well if planted with flowering geraniums, with a canna here and there to relieve the formality. This with silver leaf geranium or a foliage plant of some kind, a dwarf sarracenia planted one foot apart with a good dwarf sweet alyssum alternated and a little nerver the edge will give a good border.

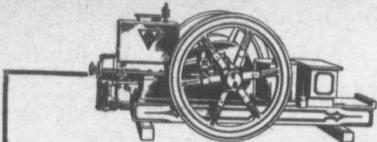
To get best results from plants, a good rich loam is best, but any soil should grow them if well fertilized and cultivated. And of the two cultivation is probably most important.

Ten Ways to Conserve

THE following ten ways to conserve are suggested by the staff of Macdonald College:

- 1—Cut the bread at the table and as required.
- 2—Save the crumbs from the bread board. You will be surprised to see how many there are.
- 3—Take a little less butter than you think you will need. It will probably be the right amount.
- 4—Eat one more potato and one less slice of bread.
- 5—Eat one more spoonful of porridge and half a slice less of toast.
- 6—If you need (?) sugar in tea or coffee take what is required to sweeten it. Do not leave a teaspoonful in bottom of your cup.
- 7—Fat is scarce to-day. Do not leave the soap lying in water.
- 8—Do not eat more than you need. Eat what you require, you will feel better and it's better work.
- 9—Leave a clean plate.
- 10—Eat slowly. Food well masticated supplies more nourishment to the body; consequently less food is required.

Add one of these suggestions to the various ways you have of conserving. Never lose sight of the fact that it is the individual who must save the situation.



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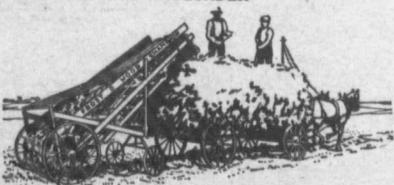
Cleans up a wide swath and gives you a nice, even, loosely-plied windrow, through which the air can circulate and give you perfectly-cured hay. The three tooth-bars, arranged on a cylinder, give a perfect clean-up. No work about it—all you do is drive. This Rake is made of the highest grade materials, rigidly braced, and will handle the heaviest crop.



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If you once saw how neat, easy and quickly this Champion Hay Loader works you'd never rest until you had one, too. It's the sensible, modern, economical way of getting in the crop. It loads as fast as you want to drive. It is immensely strong, yet light. The six tooth-bars on the gathering drum pick up the hay and pass it up a moving rope-and-slat apron, on to the wagon—a clean, workmanlike job. Thrown in and out of gear by small levers on the wheels.



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EATON'S

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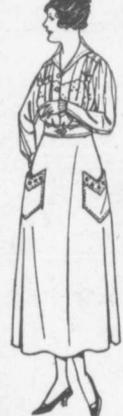
Dainty White Embroidery and Lawn Dress \$1.00
72-B240 Only \$1.00 for this pretty little dress of Lawn and Scallop Embroidery, combined as shown in the illustration. Lawn back trimmed with tucks and facings with pearl buttons. Lace edge sleeves and back of neck. Size: 15 21 25 29 34 37 41.
Price 1.00
For further particulars see page 116 of our Spring and Summer Catalogue.



Middy 1.59

Coat-style Middy of Strong Jean 1.59

78-B486 Coat-style Middy of White Jean
close down by front with pearl buttons, and fulfurs in pocketed by each side. Large cape-like collar, pointed turn-back cuffs on long sleeves and bands on pouch pockets are button-trimmed. Size: 14, 16, 18 and 20 years. Also 42, 44 and 46 inch. Price: 1.59
The further particulars see page 86 of our Spring and Summer Catalogue.



Skirt 4.50

This Popular Donegal Tweed Skirt is Extra Good Value at 4.50

56-B109 Smartly tailored Donegal Tweed, has cuffs at top, trim of broad button-trimmed belt. Frontal patch pockets are trimmed with novelty buttons. This trim three-piece model is finished to close invisibly at side. Waistband, 25 to 29 inches. Choice of front lengths 35 to 40 inches.
Price 4.50
For further particulars see page 49 of our Spring and Summer Catalogue.



A Boy's Dressy Blue Serge Norfolk Suit very Low-priced at 8.95 and 9.95

94-B723 Here we offer fine tweil hard-finish Blue Serge Norfolk. Note the attractive and dressy appearance of this suit; then remember that special care has been given to the making and trimmings in order to insure a suit that will keep its shape and good looks. You will be pleased with the value offered in this number.

Sizes: 25 to 23 chest measurements, to fit ages 11 to 15 8.95
Sizes: 34 to 36 chest measurements, to fit ages 14 to 18 9.95

For further particulars see page 253 of our Spring and Summer Catalogue.

8.95 and 9.95



Stylish White Pique Blouse 1.35

78-B791 Smart tailored Blouse of White Pique, is made in both small and extra sizes. Large white pearl buttons close front. New convertible collar may be worn high or low. Deep cuffs on long sleeves have pearl button back fold. Bust sizes: 34 to 52.
Price 1.35
For further particulars see page 81 of our Spring and Summer Catalogue.

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Dress 19.50

Woman's Paillette Silk Dress at 19.50

58-B303 Dress of Paillette silk. The graceful, trim, self-covered buttons. Surplice bodice is trimmed with self-embroidery in silk and gilt. Fine-pleated White Georgette cross front yoke and over-collar which tops collar of self-covered Georgette. Cuffs at the silk on long sleeves of Georgette. Size: 34 and 36 bust with 37 in. skirt, 38 and 40 bust with 38 in. skirt, 42 and 44 bust with 39 in. skirt, 46 and 48 bust. Price: 19.50
For further particulars see page 80 of our Spring and Summer Catalogue.

Workingmen! This Strong, Roomy Work Shirt for 90c

40-B701 Man's Reliable Working Shirt, made from good strong Drill, with large, roomy body. It has collar attached, double yoke, pocket, and cuffs. Finished same. This is an extra good value that you cannot afford to miss. Comes in Black with small White stripes.



15.00

Sizes: 14 to 17 1/2. Each 90c
For further particulars see page 258 of our Spring and Summer Catalogue.

90c



Man's Cheviot-finished Tweed Suit is a Leader in Value at 15.00

44-B256 This dress button, single-breasted sack suit is tailored from a very Brown Cheviot-finished Tweed in a medium weight. The material has self-finished, slant-shouldered surface and is of a close, firm weave. The five button jacket has distinctive horizontal ribbing, decorative pockets and belt loops.
Price 15.00
For further particulars see page 229 of our Spring and Summer Catalogue.

15.00

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Butter and Cream
to send
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EATON'S LIMITED
TORONTO CANADA

The Makers' Corner

Butter and Cheese Makers are invited to send contributions to this department, in the form of questions, matters relating to cheese making, and to suggest subjects for discussion.

The Price of Cheese

EDITOR Farm and Dairy: After considering the price of Canadian cheese, delivered at Montreal, I am of opinion that there is much more money to be made in the making of butter or condensed milk. The 1917 price of cheese was, I think, considered reasonable, but, owing to the price of manufacturing, feeding and labor, the 1918 price has not been increased enough. Feed that could be bought at \$2.30 a cwt. a year ago costs \$3.40 a cwt. this year. Cheese boxes have advanced 16 cts. a box, and other factory supplies have advanced just as much, and wages have gone up one-third, so you see where we stand. I have been talking to the patrons, and they all say they would pay as much in cheese for their milk as they did last year.—R. H. Little, Pine Grove Factory, Peterboro Co., Ont.

Season's Butter Competition in B.C.

REALIZING the necessity of improvement in quality, flavor and workmanship in British Columbia creamery butter, the B. C. Dairy-men's Association announce that arrangements have been completed for the holding of a Season's Butter Competition, extending over a period of several months. Exhibits will consist of one fourteen-pound box of butter, solid fat (salted), to be made between the

THE ONTARIO DAIRY COUNCIL.

AT the dairy convention in Guelph, held some weeks ago, it was decided that an Ontario Dairy Council should be organized by a meeting of representatives of all of the existing dairy organizations. The calling together of this representative committee was left to the initiative of Premier Hearst, the acting Minister of Agriculture. Premier Hearst very wisely refused to accept the responsibility placed upon him and notified the standing committee appointed at Guelph to that effect. Accordingly the committee again met in Toronto recently, along with Prof. H. H. Dean, who was invited to attend, and Mr. Trainer was appointed to communicate with the executives of the various dairy organizations in the province, asking that their appointed representatives to a committee which will meet at a later date and organize an Ontario Dairy Council. The council, when organized, therefore, will be an independent dairy organization, free from official influence. The dairymen of Ontario will thank Premier Hearst for his decision to take no part in the organization work, which can be better done independently by the dairymen themselves.

ist and 15th of each month, and sent to stock storage as directed by the Security, not later than the 20th of each month, to be held there until judged at the end of the season.

The result of the judging of these exhibits will bear testimony to the judgment displayed by the exhibitors in selecting their raw material, and to their ability to make it into the finished product. By extending the competition over a number of months, the

scores will also indicate the relative keeping qualities of the butter put up during the different months of the season, and at the different creameries. Detailed records of each churning of butter from which the exhibit is made will be kept for purposes of reference and comparison, and these in themselves will be of considerable educational value.

Rennet for Canada

AS the result of representations made by the Canadian Food Board, the British Ministry of Food has cabled permission to the British Charge d'Affaires at Copenhagen, Denmark, to issue a special permit for the shipment to Canada of 10,000 gallons of rennet.

Cheese from By-Products

THIE following are brief directions for making cheese from skim milk and buttermilk, these two dairy by-products.

Skim Milk Cheese: Pasteurize skim milk then cool to 60 degrees or 65 degrees F., and add from one to two ounces of culture to each 10 lbs. of skim milk. Next morning the curd will be nicely coagulated and ready to make into cottage cheese. Stir the curd to break it up, then place the can of milk in a vessel containing hot water. Stir gently until the curd and whey separate. This usually takes place between 85 degrees F. and 100 degrees F. If the separation is not complete at 100 degrees F., do not heat higher, but let the cans stand until the whey is clear. High temperatures give a dry grainy curd. Drain the curd by hanging it up in cotton bags or putting it on a draining rack covered with cheese cloth. When sufficiently drained, add about one ounce cream to a pound of cheese and salt at the rate of one ounce to four or five pounds cheese.

Buttermilk Cheese: Heat the buttermilk to 130 degrees F., or 140 degrees F. Let stand for one-half to one hour, then hang up in a cotton bag to drain or else place on a rack covered with cheese cloth. When sufficiently drained, salt at the rate of one ounce to four or five pounds cheese.

Off Flavors in Milk

FROM the cheesemaker's viewpoint milk coming in with off flavor is often worse than milk coming in sour. The average cheese factory is not equipped for the satisfactory removal of these flavors. Facilities for aeration are usually absent. Whether or not the cheese factory is equipped to deal with such milk, the best course for the cheesemaker to pursue is to trace the off flavor to a particular patron's can, investigate the cause, and try to effect a remedy outside of the factory. Food odors may be removed from milk by aeration. Odors due to bacterial causes, however, should not be removed but by a variation in the manufacturing process. They must be fought with a good lactic acid starter. The cause is usually conditions unfavorable for the objectionable bacteria. Cook the curd a little higher than usual. Dip early, since, as a rule, three-hour flavors seem to disappear more quickly when the curd is out of the whey. Some cheesemakers rinse the curd with pure, warm water after dipping, and claim to secure satisfactory results thereby. If the curd is at all lumpy it should be pried fairly high, milled early and spread thinly, so that the air may get through it. A few cheesemakers advocate using water on these lumpy curds just before making and before salting. It is usually better to salt a little heavier than usual. Some investigators claim that no more "wet acid" should be run on a tainted than on a normal curd. The most successful makers recommend keeping the curd warm after dipping, to develop as much "dry acid" as possible.

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Union-Made
**Overalls
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My Dad wears 'em

Bob Long says:

"My overalls and shirts are the best made, because they are roomy and comfortable. I designed them with the idea that you might want to stretch your arms and legs occasionally."

Insist on "Bob Long" brand. Ask your dealer for Big 11—the big grey overalls—the cloth with the test.

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1866 1918

THE FARMERS SEEDSMAN **SEEDS** FIFTY YEAR SERVICE

Don't Neglect Your Order

The time is getting short and the stock of good seeds is going down. If you have not already sent in your order, do so at once and avoid the possibility of disappointment at the last minute. To-day is the day to order.

We pay railway freight to all points in Ontario and Quebec on orders of \$25.00 or more.

CORN.	Silverhull Buckwheat ... 2.60
White Cap Yellow Dent, on Cobs, 70 lbs. to bushel, ... \$5.00	Rye Duckwheat ... 2.60
We hear this car of corn has passed the border and is nearing Toronto. It was grown on Long Island, New York, and we are informed it is in excellent condition.	
Early Prince Charles, Husked. Would do as a substitute for Wisconsin No. 7. Guaranteed 39% germination, shelled, ... \$4.60	Musts
Early Improved Leaming. Guaranteed 90% germination, shelled, ... 4.60	Russian ... 2.60
Clover.	Hungarian ... 4.00
Albion, Ontario variety, of No. 3, almost No. 1. For purity, ... \$5.00	Golden ... 2.90
Sweet Clover, White Blossom ... \$16.00	Cowpeas ... 3.75
O.A.C. 21 Barley, ... 2.40	Amber Sugar Cane ... 11c
O.A.C. Barley, Rowen ... 2.25	Kentucky Blue Grass ... 11c
Bags for Clover 45c extra.	Dwarf Essex Rape ... 18c
Bags for Grain, Free.	Garden Corn
	Kendall Early Giant ... 30c
	Stewart's Evergreen ... 11c
	Japanese Barnyard ... 7c
	Swede Turnip ... \$1.50
	Potatoes
	Early Bureks ... \$2.00
	Irish Cobblers ... 2.00
	Delaware Blue Green ... 3.75
	Green Mountain ... 3.75
	Russet State ... 3.00
	Swiss Warrior ... 3.00

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SKIM MORE NET PROFITS WITH A

VIKING CREAM SEPARATOR



Sweden is the Birthplace of the Separator Industry

Here is Sweden's Greatest Cream Separator

THE Viking is beyond question the most efficient cream separator made. With it, you save *all* the butter fat dollars—because it skims *to the merest trace*. Its use means greater *net* profits from your cows. Moreover, you save money on the first cost of this most efficient separator.

Lower in Price—Has Greater Capacity than any other Separator of Equal Rating

It is a positive fact that *many other separators costing more have 100 lbs. less capacity per hour than the Viking!* Scientifically designed and constructed of the very finest materials. No separator at *any price* has finer tool steel used in its running parts. None surpasses it in fine workmanship in every detail.

Model B
Capacity 400
Lbs. Per Hour

Over One Million in Use

And We Are Getting Vikings From Sweden On Every Freight Steamer—A Continuous Stream Of Machines And Parts—Because We Represent The Largest Separator Factory In The World And Have Overcome All Manufacturing And Shipping Difficulties.

You can absolutely rely on getting your Viking Separator promptly from your dealer. No delay, either, in getting any new parts at any time. Remember—

We Guarantee Every Viking For A Lifetime

We also agree to give you factory service any time and all the time. Our big Branch Factory in Chicago is always at your command. The simplicity of the Viking makes the operation easy. When you

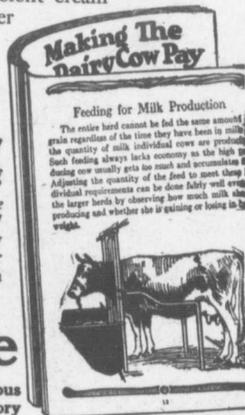
take hold of the handle the whole operation starts. The Viking straight discs make it the easiest separator to clean. All discs wash at once. Whole bowl can be perfectly cleaned in three minutes.

Valuable Book FREE—Send Coupon Immediately

This book, "Making the Dairy Cow Pay," is filled from cover to cover with profit-making pointers for dairymen. Practical, proven plans for "breeding up" herds—selecting most productive bulls—increasing herd's yield—cutting out "boarder" cows—in fact, every detail of dairy dollar-making.

Every statement in it is authoritative—the best plans of the most successful Dairymen and State and National Experiment Stations. Write for it today. Send your name and address on the coupon or a postcard.

READ IT. PROFIT BY IT.



Making The Dairy Cow Pay

Feeding for Milk Production

The entire herd cannot be fed the same amount, grain regardless of the time they have been in milk; the quantity of milk individual cows are producing. Such feeding always lacks economy as the high producing cow usually gets too much and accumulating fat. Adjusting the quantity of the feed to meet each individual requirement can be done fairly well even the larger herds by observing how much milk she produces and whether she is gaining or losing in weight.



SWEDISH SEPARATOR COMPANY
Department BJ 515 South Walls Street, CHICAGO, ILL.

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615 South Walls Street
Chicago, Ill.
Please send me free of charge a copy of your book, "Making the Dairy Cow Pay." Also full information about the Viking Cream Separator.
I have _____ cows.
Name _____
Street or R. F. D. _____
Town _____
State _____

MARKET REVIEW AND FORECAST

TORONTO, May 15.—Both Eastern and Western Canada have been almost wild with a leading weather. The ground has worked and there is plenty of moisture to get the spring crops off to a good start. The only heavy showers in both East and West have furthered somewhat the crop situation. Weather generally is much ahead of the average at this date, and a good possibility of the grain is now. Reports from practically all provinces indicate an increased production of spring wheat, and in Ontario fully 40 per cent. of the fall wheat crop has been up to date for barley or spring wheat. Cereals now give promise of being a fair crop, although in some sections, notably in Eastern Ontario, the seeds have been badly water killed. The new budget to still the same topic of conversation in business circles, and a strong tendency to approve of the increased taxation, particularly as it affects income and luxuries. Some of the strikes more particularly affected, as the jewelers, for instance, are protesting, but there is a general tendency to give short shrift to anything that favors the non-essential luxuries. During the week the grain market has been very quiet, cattle have gone to the pens, hogs, however, have been sold but have declined still further, but the egg market is remarkably firm.

WHEAT.

Millers are now working under the most drastic regulations that have yet been imposed on their industry; they are not now permitted to have on hand at any time more wheat than is sufficient for their requirements of 10 days. A special effort is to be made to get all next year's wheat to market that is in millers' hands, an amount estimated at from 10,000,000 to 15,000,000 bushels. The United States wheat crop is now estimated at 57,253,000 bushels, and in Canada is placed at 81 per cent. of normal; the average for the previous 10 years has been 85.7 per cent. The situation, therefore, has improved considerably in the past month, and prices are as follows: Manitoba, what is store, Port William, nominal (including 1/4 cent); Northern, 13 1/2c; No. 1 northern, 12.00c; No. 1 northern, 12.17c; No. 1 what, 12.04c; No. 2 what—No. 1, 12.25c; No. 2, 12.25c; No. 3, 12.25c.

COARSE GRAINS.

There has been very few oats changed on this market. Western oats have been firmer, and there are possibly no Ontario oats to be had, probably because farmers are too busy to make deliveries. It is probable, too, that the small quantities of millfeed which have been available in the past week have resulted in practically all feed crop of their kind being consumed on the farm. Manitoba oats are quoted here as follows: No. 1, 78c; No. 1 feed, 75c; Ontario oats, 81c; No. 1, 75c; No. 2, 75c; No. 3, 75c; No. 4, 75c; No. 5, 75c; No. 6, 75c; No. 7, 75c; No. 8, 75c; No. 9, 75c; No. 10, 75c; No. 11, 75c; No. 12, 75c; No. 13, 75c; No. 14, 75c; No. 15, 75c; No. 16, 75c; No. 17, 75c; No. 18, 75c; No. 19, 75c; No. 20, 75c; No. 21, 75c; No. 22, 75c; No. 23, 75c; No. 24, 75c; No. 25, 75c; No. 26, 75c; No. 27, 75c; No. 28, 75c; No. 29, 75c; No. 30, 75c; No. 31, 75c; No. 32, 75c; No. 33, 75c; No. 34, 75c; No. 35, 75c; No. 36, 75c; No. 37, 75c; No. 38, 75c; No. 39, 75c; No. 40, 75c; No. 41, 75c; No. 42, 75c; No. 43, 75c; No. 44, 75c; No. 45, 75c; No. 46, 75c; No. 47, 75c; No. 48, 75c; No. 49, 75c; No. 50, 75c; No. 51, 75c; No. 52, 75c; No. 53, 75c; No. 54, 75c; No. 55, 75c; No. 56, 75c; No. 57, 75c; No. 58, 75c; No. 59, 75c; No. 60, 75c; No. 61, 75c; No. 62, 75c; No. 63, 75c; No. 64, 75c; No. 65, 75c; No. 66, 75c; No. 67, 75c; No. 68, 75c; No. 69, 75c; No. 70, 75c; No. 71, 75c; 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- in motor truck or any form of internal combustion engine

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When nature made the crude, she knew no favorites. Refiners received the same raw materials. All were supplied alike.

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