

Soils and Crops

By Agronomist.

This Department is for the use of our farm readers who want the advice of an expert on any question regarding soil, seed, crops, etc. If your question is of sufficient general interest, it will be answered through this column. If stamped and addressed envelope is enclosed with your letter, a complete answer will be mailed to you. Address Agronomist, care of Wilson Publishing Co., Ltd., 73 Adelaide St. W., Toronto.

Can the Race Live Without the Cow?

Certain scientists have maintained that milk and butter were not absolutely necessary foods. They see the time when cheaper substitutes will take the place of milk and butter-fat. The oleomargarine people have had this vision for some time and the scientists of Germany have claimed they could produce a substitute for milk from soy beans which could not be detected from actual cows' milk except by careful analysis. Vegetable oils and the cheaper animal fats can be produced much cheaper than butter-fats, so also this milk substitute from soy beans can be produced much cheaper than cow's milk, consequently, the time is coming when economic conditions will cause substitution of these cheaper products for the milk and butter-fat of the cow.

But another scientist, working along different lines, has proved that a certain element of butter-fat is absolutely necessary for the growth of children and health maintenance of adults. This man is Dr. McCollum, of Johns Hopkins University. By careful experiments covering the period from 1907 to 1917, Dr. McCollum proved there are two what he calls "protective foods." Without a certain amount of these protective foods in the diet children cannot develop, neither can adults maintain vigorous health. It used to be thought that a diet of tubers, grains, roots and meat could be made a perfect diet but the experiment of Dr. McCollum in feeding various foods to young animals for these ten years proved that they cannot develop unless these protective foods are used.

And these two "protective foods" are obtained so far as known at the present time from only two sources—the leaves of plants and the butter-fat of milk. If people could consume enough of the leaves of plants

they could get along without butter-fat, but this is not possible and consequently to have vigorous health butter-fat must be a part of the ration. Dr. McCollum has called this protective element the "Fat Soluble A."

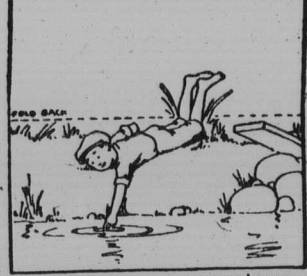
Many people to-day are hailing Dr. McCollum as the saviour of the dairy industry because he has proved to the world that the dairy cow is necessary to the maintenance of human life in a vigorous condition. The only argument against oleo up until now was that butter-fat was more easily digested than the animal and vegetable fats used in oleo; it would melt at a lower temperature. Observing people had noticed that young children did much better when a part of food contained butter-fat and attributed it to the fact that butter-fat was more easily digested and assimilated. But Dr. McCollum's experiments indicate the reason was because butter-fat contains this vital element, fat soluble A) which is not found only in the leaves of plants, consequently it is the best argument against the substitution of oleo.

The medical profession, public school teachers, colleges, universities and the reading public now understand this idea and are spreading the gospel of truth so it will only be a short time before intelligent citizens understand this idea and when they do they will hesitate before they substitute oleo for butter, even though it is much cheaper.

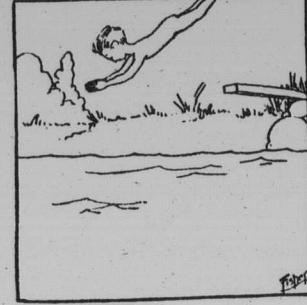
The dairy cow will not be put aside because we can imitate her products. She is necessary to civilization and, no matter what comes, is destined to endure. When the people understand the importance of butter-fat in a diet, especially children's, they will be willing to pay a sufficient price for whole milk and butter-fat, so that the dairy industry cannot be driven to the wall by cheap substitutes.

FUNNY FOLD-UPS

CUT OUT AND FOLD ON DOTTED LINES



THE SUN IS BRIGHT, THE WATER'S WARM, I THINK A SWIM WILL DO NO HARM.



SO ONE FOR THE MONEY, TWO FOR THE SHOW, THREE TO GET READY, AND IN I GO.

The Sunday School

INTERNATIONAL LESSON
SEPTEMBER 29.

Lesson XIII. What It Means To Be A Christian—1 Cor. 13. Golden Text, 1 John 3. 18.

After spending six months in the study of the Life and Teaching of Jesus and three months in these studies of the Christian life, we may well conclude this series by asking the question, "What is it to be a Christian?"

At once may be answered: "A Christian is a follower of the Christ." In the terms of the teaching of Jesus this involves certain very definite characteristics. Mark's great thesis is "The Good News of the Kingdom of God." Jesus announced this kingdom and made it open to every one. It is for all nations. It is freely offered to all men. It is the royal rule of God on earth; a kingdom progressively realized on earth, perfectly fulfilled in heaven.

This is surely a glorious piece of news! Among all the dreams of social perfectness which the fertile mind of man has flung forth not one equals this of the kingdom of God. It is no mere dream, it is a fact in process of growing fulfillment.

Broadly speaking, then, a Christian is one who is a member of this kingdom, is a son of the King and is living in accord with the rules of the Kingdom.

Jesus announced the conditions of entrance into the Kingdom. "Repent and believe the good news." "Repent."—By this he meant that men should break away from their old life, their old purpose, their old position. This means much more than groaning over the past. It does indeed involve sorrow for sin and restitution for wrong done, but its fundamental idea is, rather, a complete "about face."

"Believe the good news (Mark 1. 15).—They must believe in God as Father, in man as brother, in love as the true law of life, in Jesus as the Christ.

The terms of admission to the Kingdom Jesus put in a more striking way when he said to his ambitious disciples, "Except ye turn and become as little children ye shall in no wise enter therein." So, he reminded them that the divine Fatherhood and human brotherhood is a gift, a boon. It cannot be earned by good conduct. It is not to be withheld from evildoers. It is freely bestowed as a gift of grace. It absolutely shuts out self-righteousness. It demands the attitude of the child, a spirit of receptive humility.

To believe the good news is vastly more than a mere intellectual assent to certain teachings. Faith in Jesus as Christ means not only an opinion about him, but a surrender of the entire self to him. So, we may say that our Christian faith is composed of two elements, first the assent of the will, which is the giving over of the entire life to Jesus. We then become followers of Jesus and subjects of the kingdom of God.

As his followers and subjects of the Kingdom Jesus tells us that we sustain certain relations to God. We are God's children; he is our heavenly Father, forgiving our sins, supplying us with food and clothing, guiding us, bestowing good gifts upon us and giving us his best gift, which is the Holy Spirit (Luke 11. 13). He also tells us that we are to cherish toward God faith, obedience, and supreme and complete love (Mark 12. 30). He also teaches us that our mutual relations to God find expression in prayer, which is to be in secret, trustful, believing; that is, expectant and in the manner of the Lord's Prayer.

Of the utmost importance is Jesus' teaching concerning our relation to the other members of the Kingdom. We form one brotherhood, for we have one Father and one Teacher, being brethren of Christ the King. He assures us that each one possesses a peculiar sanctity and that dreadful consequences certainly follow him who causes "one of these little ones" to stumble. We are also taught that

while each soul has great worth he must be ready to sacrifice himself completely for the kingdom. He announces the great law of sacrifice as the central principle, "Whosoever would save his life shall lose it" and "Whosoever would lose his life shall save it." He does not want us to efface ourselves. Self-effacement springs out of weak or amiable compliance with the whims or wishes of others, but self-sacrifice is a noble self-forgetting for the sake of others.

We learn also in this connection of the law of brotherhood, which Jesus makes so prominent. This law touches not merely the outer act but, far more, the inner spirit. He exhortates the scribes and Pharisees for their external righteousness, and draws a broad line of distinction between the righteousness of the Kingdom and the righteousness of these religious teachers. They bred a legal spirit. Jesus teaches a loyal spirit. They taught men to seek life in law. Jesus teaches us to find law in life.

Topics in Season.
Madonna lily bulbs may be planted this month. Most other bulbs should not be put into the ground until October.

Before frost, make cuttings of the heliotrope, verbenas and other tender plants which you will want for setting out early next spring.

The Italians have manufactured a substitute for sugar, it is derived from grapes by evaporating the juice. It is said to be particularly valuable in the preservation of fruits.

The French Department of Agriculture reckons that a swallow is worth \$9; a lizard, \$9; a toad, \$20; a titmouse, \$8; a robin, \$4; a bat, \$30; an owl, \$12.

All the refuse of crops that are through fruiting should be burned as soon as dry enough. Cabbage stumps, cucumbers, melons, tomatoes and the like should not be left to decay.

The strawberry bed still needs cultivating. Keep busy until the ground freezes. Light frosts do not count. September is housecleaning month in the garden, and a good cleaning up there is just as necessary as in the house. The most important thing is to prevent weeds going to seed.

To control white grubs, plow the infested soil deeply before October 1, and while plowing turn the poultry or hogs into the field to destroy the grubs.

A recent Swiss decree provides for compulsory crop production by all land-owners, with the 1914 acreage as a minimum. All grain growers who fail to deliver the required amount in to the hands of the authorities must pay four-fold the maximum price as indemnity for their deficiency.

Ripen late tomatoes by pulling the vines and letting them lie with the fruit on in a cool shed or in the basement. Cover the vines in the garden with blankets when frost threatens and you may be able to save them for a week or two.

When frost has touched the tuberoses, elephant's-ear and Madeira vine, take up the bulbs and store them.

GOOD HEALTH QUESTION BOX

By Andrew F. Carrier, M.D.
Dr. Carrier will answer all signed letters pertaining to Health. If your question is of general interest it will be answered through these columns; if not, it will be answered personally if stamped, addressed envelope is enclosed. Dr. Carrier will not prescribe for individual cases or make diagnosis. Address Dr. Andrew F. Carrier, care of Wilson Publishing Co., 73 Adelaide St. West, Toronto.

Physical Changes Which Take Place After Middle Life.

By middle life the tissues of the body have reached the culmination of their development and from this time forth the period of degeneration has its turn. That which is most to be dreaded from this point onward is malignant disease. Organs which have been overworked or abused, the stomach, liver, tongue, intestine, and in women the breast and uterus, now may become cancerous, and other organs or portions of the body which may be subjected to more or less persistent irritation are in danger from the same merciless enemy. The arteries of the body are susceptible to degenerative changes from middle life onward, either undergoing softening or becoming harder by the formation of new tissue or the deposit of lime salts within their walls in the latter case becoming brittle like pipe stems. In any case the arteries become perilously weak and the degenerative changes take place so gradually that they are usually quite inappreciable to the patient. Should the heart of a patient who is thus diseased become suddenly or unusually active the extra force which it happens to exert would be likely to produce a break in one or more of the weakened arteries. The arteries in the brain are particularly weak and that is why so many people who have passed middle life have apoplexy.

This is also the period of rheumatism, and neuralgias and gout and of obesity which makes people clumsy and awkward and ill adapted to endure pain and stiffness of joints, muscles, and nerves.

In this period also are the diseases of the bladder and prostate gland accompanied not only with the annoyance of frequent calls to evacuate the bladder but with pain, haemorrhage and other disagreeable symptoms. Sometimes these things can be prevented and sometimes not. Perhaps they are penalties for past sins which may not be escaped and the best you can do is to watch them and try to make the symptoms as mild as possible. Malignant disease may sometimes be forestalled by removing causes of irritation, curing infection, omitting unsuitable food.

When dahlias and cannas are frost bitten, cut off the tops, leaving about six inches of the stems. Remove the roots in a clump with dirt attached. Spread roots out in the sun to dry, then store in a dry, well-ventilated cellar, on the floor or on shelves. Keep the varieties labelled.

ing the teeth in good condition, swearing pipes, cigars and cigarettes. Sleep must be encouraged at all costs it is more important than food, and there is worryment it must be unconditionally dismissed. Exposure to cold and wet and even changes in the weather are sure to bring on rheumatic troubles, hence the clothing must be adapted to the season and suitable medical treatment afforded. Increase in the blood pressure means change in the arteries, hence tests must be made from time to time and suitable exercise, diet and mechanical and physical treatment prescribed. Disease of the bladder and prostate gland is amenable to relief in their early stages hence the first appearance of trouble is a danger signal. Frequently one who has any of these diseases or tendencies must change the occupation of his life, give up his occupation, change his residence, or separate from his family and friends. These hardships are often just what, however, in the relief they afford bad symptoms and the months years they add to life with a corresponding increase in happiness, fullness and power of influence.

Questions and Answers.

- X. Y. Z.—1—Does indigestion affect the nerves?
2—Which solid foods are indigestible?
3—Does butter affect digestion?
4—What part of dandelion is medicinal purposes?
5—Am forty, weigh 140 and am five feet and height. How could I lose weight?
Answer—1—It is not a disease. 2—The question is rather indistinct. 3—If you mean "Does butter affect digestion?" 4—The medicinal part is the root. 5—You should lose weight by dieting and exercise.

Horse Sense

Prices of horses have been advancing steadily. War interfered with horse-breeding operations in France and Great Britain and drew heavily on their existing supply. It is reported that in Great Britain heavy draft geldings are bringing from \$800 to \$1,000 each. Tractors are being used in hauling munitions and drawing artillery because enough horses cannot be secured for that work. There will be large shipments of horses abroad after the war, which will take some of our heaviest and best animals.

For that reason, it is essential to take good care of every colt. The most critical time is at weaning. Large numbers of stunted colts get their first set-back when taken from the mares in the fall. Teach the colt to eat grain, if it has not already learned, and when once taken from the mare, do not let it return. Letting it get back to the mare after starting to wean it may ruin the mare, and it will make the colt mean. Milk out the mare's udder for a week or so, and if it becomes caked apply lard.

Sheep Notes

Returns from sheep are quick and profitable. It is not necessary to keep a ewe lamb a year before it returns a profit. A lamb weighing seventy-five pounds and costing twenty cents a pound, will clip five pounds of wool next spring. At seventy cents a pound the wool would be worth \$3.50, or twenty per cent. of the original investment. At the end of that time the owner will have a ewe worth more for breeding purposes than the average ewe that he could go out and buy. It is true this ewe lamb consumes a certain amount of feed which possibly should be charged against her, but since there is pasture and forage going to waste on every farm each year, it is hardly necessary to exact a heavy feed bill.

Many people find it possible to keep one sheep for each head of cattle their pastures will carry, at no additional expense. If they could all be convinced of the actual need for a greatly increased supply of wool next year, many of them might adopt such a practice very much to their own profit and to the assistance of the Government. When sheep are properly handled they are mortgage lifters and bring thrift.

Save The Seeds.

It is not difficult to save the seeds of annual vegetables for next year's gardens. They must be thoroughly dried before they are put away for the winter. Spread the seeds thinly in a dry, airy place, out of the sun, on a sheet of paper until they are dry; do not use heat. When dry store where there is little variation of temperature. If moist when stored or allowed to collect moisture they will become mouldy or start to germinate. Flower seeds may be saved in the same manner.

Poultry

Shorter days and cooler nights seem to put new life into both the poultryman and his stock. Plans should be laid for the winter campaign, and when it is thought best to introduce new blood into the flock, the order should be placed now so that there can be a better selection.

Dispose of all stock that has not been profitable. There is no better time for culling than now, just before this surplus stock starts into molt.

The molting season has arrived, and it is important that the birds have special care. It is a good plan to keep pieces of rusty iron in the drinking vessels so as to give the water a tonic effect.

Young turkeys that have reached September in good condition have passed the critical stage, and during this month will make wonderful strides in growth and development.

March-hatched pullets are showing every indication of early laying, if they have not already started. If properly grown they will not only be steady fall layers, but reliable winter layers as well.

Remove the male birds from the flock and keep them separated until the first of the year.

Clean up all rubbish piles about the houses this month. Rubbish harbors rats and other enemies of the poultry yard.

The Dairy

No single piece of farm machinery has increased more in use in the last two years than the mechanical milker. In this country, where the labor shortage became critical early in the war as a result of the enlistment of farm laborers, the milking machine is the one thing that has averted a disastrous drop in dairy production.

On hundreds of Canadian farms women, with the aid of this machine, do the milking. As the war progresses, many more dairy farmers will be compelled to adopt the milking machine, or curtail operations, or go out of business. The dairyman who thinks the initial investment is too great or the cost of upkeep too high makes a mistake.

In the United States a leading western dairyman who has 100 cows has operated a milking machine of six units for four years. To-day the original parts, all but the rubber portions, are still in use. The rubber parts were renewed nine months ago. On another farm where forty cows are milked, upkeep cost has amounted to \$10 in four years. Still another dairyman, who has used a milker three years for a herd of thirty cows, spent \$3 this year in placing the machine in first-class order.

Candy Makers On Half Rations.

Candy manufacturers in Canada have used, in the past, eleven per cent. of all the sugar consumed in Canada. This has been reduced to a maximum of 5 1/2 per cent. by the Canada Food Board, owing to the sugar situation.

The Plain Truth about Shoe Prices

LEATHER is scarce and is growing scarcer. A large part of the available supply must be used for soldiers' boots. Importations have practically ceased and we are forced to depend upon the limited quantity of materials produced in Canada.

The cost of everything which goes into a pair of shoes is high, and is going higher. Workmen by the thousands have joined the colors, and labor is increasingly hard to get. It is not merely a matter of high prices, but of producing enough good quality shoes to go around.

These conditions are beyond the control of any man, or any group of men. They fall on all alike. No one is exempt—neither the manufacturer, the dealer, nor the consumer.

You must pay more today for shoes of the same quality than you did a year ago. Next Spring, prices will be higher still.

These are hard facts. They will not yield to argument. They cannot be glossed over. We cannot change them, much as we would wish to do so.


But you, as a wearer of shoes, can help to relieve them if you will exercise prudence and good judgment in purchasing. See that you get *real value* for your money. Spend enough to get it, but spend nothing for "frills."

See that the manufacturer's trade-mark is stamped upon the shoes you buy. High prices are a temptation to reduce the quality in order to make the price seem low. But no manufacturer will stamp his trade-mark upon a product which he is ashamed to acknowledge. Remember this, and look for the trade-mark. It is your best assurance of real value for your money.

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