

SOILS and CROPS

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Cleaning Milking-Machines

The following method of cleaning milking-machines has been found to be practical and should give good results:

After each milking, immediately rinse the machine with cold or lukewarm water. This is done by attaching the hose to the pump line and immersing the hot cups in a pail containing the rinsing water. It is best to break the flow through the machine by pulling the cups out of the water and then immediately immersing them again; this should be done ten or twelve times.

In another pail, containing hot water and a soda solution, repeat the same procedure. At this time, wash the outside of the test-cups and rubber tubing. Run the brush in test-cups. Repeat the process, using clean water. Draw a chlorine solution through the machine (chlorine solution described later).

Detach long milk tubes from the head of pail. Plug air tubes (in the inflation type of machine), and place the test-cups and tubing in a chlorine sterilizing solution made fresh every day. It is important that the tubes be placed in the solution carefully, so that no air pockets will remain. Place the tubing in the solution slowly, and in such a manner as to allow the air to be expelled.

Wash the buckets and covers thoroughly after each use. These should be washed in the same manner as is recommended for milk pails and cans, and thoroughly sterilized with steam.

When the units are assembled for milking, be sure that all liquid has been drained out of the air system. (This system should have been plugged, but it is best to be sure that no water has leaked in, as moisture will sometimes interfere with the pulsations.) After assembling is completed, rinse units with clean, fresh water.

Twice each week the machines must be taken completely apart and washed thoroughly. Brushes should be used in cleaning the tubing, test-cups and inflations. The best results will be obtained if a soda solution is used. Never use soap.

Every two weeks clean out the vacuum line. This is done by drawing hot soda solution through the pipe line by means of the vacuum. The construction of the line permits this solution to be drained out of the line. Usually provision is made for it near the pump. If, at any time milk is drawn into the vacuum line, clean the pipe immediately after milking.

The moisture trap on the head of the machine (cover of the bucket) should be cleaned after each milking.

To make the chlorine solution—Dissolve a twelve-ounce can of commercial chlorinated lime in two gallons of water. Strain into a crock or glass jar, discarding the sediment. Cover and keep in a cool, dark place. This is known as the stock solution, and will keep a long time.

To make the chlorine solution in

which the tubing and cups are kept, use one pint of stock chlorine solution to every eight gallons of water. This diluted solution should be used but twenty-four hours. Make up new solution every day.

The crock or box in which the tubing and cups are kept should be kept covered and clean at all times. The presence of slime or dirt in the solution will destroy its usefulness. The machine must be thoroughly washed before any of the parts are placed in the chlorine solution.

In preparing the cows for milking, the same care should be used as in milking by hand. It is necessary that the teats be very clean if a clean milk is to be obtained.

Make Concrete Floors When You Need Them.

Just now is when concrete flooring floors and sidewalks are most needed—in snowy, sloppy weather.

"But we can't do concrete work in freezing weather, can we?" some folk ask.

The best answer is the experience of scores of farmers who are doing concrete work in winter; they heat the water, cement, sand and gravel, and after the concrete is in the forms, cover it with canvas and straw. Laying concrete floors inside the barn or hog house in cold weather is not attended with such great danger from freezing.

It is necessary to so mix, place and protect the concrete that early hardening will be complete before the work is exposed to freezing temperatures. To do this:

1. Sand and pebbles or broken stone used must be free from frost or lumps of frozen materials.

2. If these materials contain frost or frozen lumps they must be thawed out before using.

3. As cement forms but a relatively small bulk of the materials in any batch of concrete, it need not be heated.

4. Mixing water should always be heated. Although adding common salt to mixing water will prevent freezing of fresh concrete until it has had time to harden, there is a limit to the quantity of salt which may be added if the final strength of the concrete is not to be affected. Salt simply lowers the freezing point of the mixing water; it does not supply what is most needed—heat and warmth. It delays, instead of hastens, the hardening of the concrete to the desired permanency.

Sand and pebbles or broken stone and mixing water must be heated so that the concrete when placed shall have a temperature of from 75 deg. to 80 deg. F. Some sands are injured by too much heat. The same applies to certain varieties of pebbles and broken stone. A temperature not exceeding 150 deg. F. will generally prove most satisfactory. Place concrete immediately after mixing so that none of the heat will be lost before placing in the forms.

Warm the metal forms and reinforcing before placing concrete. Remove ice and snow and frozen concrete remaining on the forms from preceding work. Forms can be warmed by turning a jet of steam against them or by wetting with hot water.

Even though materials have been heated and the concrete placed immediately after mixing, it will lose much of its heat if not protected from low temperatures, at once. Therefore protect the concrete immediately after placing. Canvas covering, sheathing, housing-in the work, or hay or straw properly applied will furnish the required protection for different jobs. In addition to these means, small oil or coke-burning stoves or salamanders can be used in enclosed structures. Guard against dry heat.

Temperatures which may not be low enough to freeze the concrete may, nevertheless, delay its hardening for a considerable time. Do not expect concrete placed when the temperature is low, and remains low for some time afterward, to be safe for use as soon as when placed during warmer weather. If concreting is unavoidably delayed or interrupted, the work should be covered until concreting is again begun. Cover and protect each section of the work as soon as completed. In severe weather continue this protection for at least five days. Do not remove forms from concrete work too soon.

Frozen concrete sometimes very closely resembles concrete that has thoroughly hardened. When frozen concrete is struck with a hammer it will often ring like properly hardened concrete. Before removing forms, examine the work carefully to see whether it has hardened or simply frozen. To determine this, remove one board from some section of a form, pour hot water on the concrete or turn the flame of a plumber's blow-torch or a jet of steam under pressure against the concrete. If the concrete is frozen, the heat will soften it.

Ontario's field crop value reached the record figure of \$396,000,000 in 1920.

The male of the honey-bee comes between the queen and the workers in size, and is stingless.

When you pay 30 cents for a half-pound package of Red Rose Tea (Crimson Label) you get exactly the same tea for which you formerly paid 35 cents a package.—Quality in Red Rose Tea is the first consideration.

THE SUNDAY SCHOOL

FEBRUARY 13

Lessons on Citizenship, St. Matt. 22, 15-22, 34-40. Golden Text, St. Matt. 22: 37.

Time and place—Tuesday, April 4, A.D. 29; The Temple Court at Jerusalem.

Connecting Links—When Jesus entered the Temple Court, on the Tuesday of Passion Week, the last day of His public teaching, the Pharisees asked Him by what authority He was teaching. Matt. 21: 23. In reply He questioned them about the baptism of John (Matt. 21: 24-28) and added the parables of the Two Sons and the Wicked Husbandmen, 21: 28-44. The Pharisees wished to arrest Him, but He fled the temple, Matt. 21: 45, 46. Jesus then spoke the parable of the Marriage Feast (see last lesson, Matt. 22: 1-14). Then followed three questions proposed by His enemies, one by the Pharisees and Herodians about the lawfulness of tribute to Caesar, another by the Sadducees about the resurrection of the dead and a third by a lawyer as to which was the greatest commandment. The first and third of these questions form the lesson for to-day.

I. The Tribute Money, 15-22.

V. 15. The Pharisees; a religious party fanatically opposed to everything non-Jewish, hence their name which means the "Separated Ones." They were the real of the opposition to Jesus, opposing Him on national and religious grounds" (Anderson). Jesus frequently denounced their hypocrisy. Took counsel; concocted a cunning plot. Entangle Him; ensnare Him, as a Fowler catches birds. In His talk; literally "by word," either the question they were to ask, or the answer they hoped he would give.

Vs. 16, 17. They sent . . . their disciples; young scholars. It may be phrased as "He sent them," they themselves to be so discredited with Jesus that they were not likely to succeed if they went in person. With the Herodians; a political party, deriving its name from the support which it gave to the dynasty of Herod. "Perhaps they hoped for the restoration of the national kingdom under one of the sons of Herod" (Hastings). One Vol. of the Dictionary of the Bible; Master; "Rabbi," the usual title of a Jewish teacher. Thou art true; the most insidious flattery. They approach Jesus as a teacher whom they trusted. The way of God; the kind of life and conduct in agreement with God's will. Neither care . . . for any man; hypocritical flattery; they were really pharisees on His fearless outspokenness to lead Him on to commit Himself to the question to be asked. Regard not, etc.; are not moved by outward appearance; Thy decision will not be influenced by wealth or power or prestige. It is lawful; from a religious point of view. Tribute; the tax levied by the Roman Government to which the Jews were subject. Caesar; the Emperor of Rome. If Jesus said "Yes" to this question—this was the thought of the Pharisees—He would go against popular feeling, which was strongly opposed to the tax and the people would cease to trust Him as the Messiah; if He said "No," which would be the opinion of the Pharisees, they would accuse Him—such was their hypocrisy—to the Roman authorities.

Vs. 18-21. Perceived their wickedness; saw through their crafty plot. Why tempt ye Me. The purpose of their flattery was open to the eyes of Jesus. Ye hypocrites. They were such because, while they pretended to be searchers after truth, they were really striving to entrap Him by unwary words. The tribute money. The tax could be paid only in Roman money. Penny; the Roman denarius, worth about 17 cents in our money. Image. The denarius bore the Emperor's image. Superscription; the inscription on the coin. Unto Caesar . . . Caesar's. The people used Caesar's money and lived under Caesar's protection; Jesus left it to themselves to decide if they should pay taxes to Caesar. Unto God . . . God's. People have duties to God, as well as to their political rulers. Where these duties clash, those owed to God are, of course, supreme. But Jesus does not define the limits of political authority.

V. 22. Marvelled; "wondered," the reply a genuine surprise, they had not thought it possible that He could slip out of their hands so completely and so easily.

II. The Great Commandment, 34-40.

V. 34. The Pharisees. See on v. 15. The Sadducees; a sect of the Jews, believe in the resurrection, and who had sought to discredit Jesus by showing that a belief in the resurrection was absurd, knowing that Jesus believed in the resurrection. Put . . . to silence; literally, "muzzled." The Pharisees were doubtless pleased with the defeat of their rivals, and, hoping to succeed where they had failed, attempted another encounter.

Vs. 35, 36. A lawyer; one of the scribes or interpreters of the law. Which is the great commandment? Literally, "What sort of commandment is great? What are the qualities that determine greatness in the law?" The Jewish scribes reckoned up 613 commandments in the law. Of these some were "heavy," while some were "light," and it was keenly disputed which belonged to the one class and which belonged to the other.

Vs. 37-39. Thou shalt love. Jesus answered by quoting Deut. 6: 5 as the

great and greatest ("first") commandment, enjoining the love of God to the uttermost of our being and Lev. 19: 18, enjoining the love of a neighbor as ourselves. The love of a neighbor lies in his combining . . . the love of God, and the love of neighbor, making the latter a derivative of the former and a form of its expression" (Anderson). Amongst the Pharisees the love of the law had taken the place of the personal love of God, while no place was left in their system for the human love of neighbor.

V. 40. On these two . . . hang all the law and the prophets. The moral drift of the whole Old Testament is love. No keeping of any single law is of value, unless love prompts it. Jesus rises above all petty legal questions to the spirit of love, which alone gives value to any form of duty doing.

The Lesson Applied.

1. Jesus showed us that religion is above the intrigues of politics; the Herodians and Pharisees thought to entrap Jesus, and so have ground for complaint against Him to the Roman authorities. Jesus lifted the discussion clear above the fevered question of allegiance to Rome. It was as if He said: "You bring this coin as a symbol of Roman rule and authority; I bring you the message of the eternal Father to whom you owe obedience. He simply brushed the political question aside as of no importance compared with the spiritual one. On another occasion he saw that the minds of the people were filled with anxiety about clothes, and wealth, and other external goods. "See first," he cried, "the kingdom of God." We learn also that the teaching of Jesus was not a signal for political revolt, and yet the startling thing is that when Jesus pictured the triumph of the gospel, he had in mind an empire before whose magnificence and power the imperialism of the Caesars faded into insignificance.

2. Jesus showed that men have political duties. We are to reject the contribution for the welfare of the nation. We are to render to Caesar the things that are Caesar's.

What is good citizenship in Canada? It is more than obedience to the law. Recently a Premier of one of our Provinces declared that the man who held more land, more anything than he could use, was lacking in patriotism. What did he mean? He meant that it is your duty and mine to make the fullest and largest contribution to the state, and that no man is justified in preventing another from using these means which he himself keeps under lock and key. When the curse of Deborah fell on Meroz it was because that community would not send help when a stand was being made against the common enemy.

Yet there is no doubt that if the Premier is right, a great deal of our land speculation is wrong, for we have immense stretches out West that are locked up. The same is true of timber limits and other resources.

But there is another way also of looking at this fact. If a man is richly endowed, has a fine education, musical gifts, wealth, the gift of speech or writing, he is bound to use all for the common good. He dare not allow large parts of his mental and spiritual life to be barren and unfruitful. All must be freely put on the altar of the country's need.

3. This leads to the truth that "patriotism is not enough," as Edith Cavell declared before she went to her martyr's death. Perhaps it would be best to state it in this way: that the richest patriotism involves the supreme law of "commandment" as enunciated by the Master—love to God and love to man. On these foundation stones a glorious Canada shall rest.

4. The fundamental requirement of citizenship is love. Agitators inflame the thoughtless to overthrow our institutions. But the way in which things will be settled right is the way of love—no other. "Christianity changes governments by changing the hearts of the people." We have the task of growing seriousness in Canada. Our big cities are filled with foreigners, and between 40 per cent. and 50 per cent. of our population in the West is non-British in origin. We must bring to our task of "Canadianizing" these people the spirit of patience and trust, but in truth all this talk of "Canadianizing" the "strangers within our gates" falls short of the mark. We must love them, and do our part to Christianize them, and their attachment to the country will take care of itself.

To-day is none too soon to start making up your list of seeds, bulbs, and nursery stock for spring planting.

Many farmers are pooling their interests and purchasing fertilizers together in carload lots. Have you tried it?

Read this twice: Which is the best, to give that boy of yours an acre of ground and have him raise a hundred bushels of corn, or to have him go to the city and maybe raise a hundred kiddy cents?

Are You Prepared to Fight a Fire?

A little group stood in front of the post office discussing the fire at the George Halsey farm.

"Didn't George have any insurance?" someone inquired.

"No," was the reply. "He said the rate was too high, so he never took out any. The fire began in a rubbish heap near the barn. There wasn't any water handy; the spring that supplied the barn had run dry.

"He told me," continued the speaker, "that there was only a small blaze when first discovered; that if there had been a fire extinguisher handy they easily could have put out the flames, but they had to run to the house for one and by the time they got back it was too late. A brisk wind was blowing; the house caught fire and everything went."

Every year the fire losses in this country total the enormous sum of about \$25,000,000. This is the actual loss, without considering the sacrifice of life and the many millions of dollars necessary to maintain fire departments and fire appliances. Yet experts tell us that by the timely use of chemical fire extinguishers the loss at many of these fires could be kept down to a few hundred dollars. Chemical fire extinguishers are especially valuable on farms where the water supply runs low at certain seasons of the year, or where a fire department is too far away to be depended upon.

The type of chemical fire extinguisher most commonly used is the acid-bicarbonate type. This consists of a copper container holding a solution of bicarbonate soda, with a separate glass bottle containing sulphuric acid. When the two chemicals are

mixed, carbonic-acid gas is produced and a stream of water charged with this gas is thrown on the flames. Carbonic-acid gas is the gas found in soda water. Fire cannot burn in it.

The acid-and-soda solution in these extinguishers are usually mixed by inverting the apparatus, although in some makes you must use a lever or handle to break the acid bottle. Another kind of carbonic-acid extinguisher throws a foam. This is especially good for burning oil, gasoline, etc.

One objection to soda-acid extinguishers is that in winter the liquids may freeze. The soda solution freezes at about 20 to 25 degrees Fahrenheit, above zero, the acid ordinarily at about 29 degrees above zero, but after it has stood for awhile the acid absorbs moisture from the air, causing its freezing point to rise, sometimes above that of water. A way to prevent this to put the extinguisher in an air-tight box in which an electric light is kept burning. Extinguishers of this type should be discharged, cleaned, and recharged once each year.

The popular small hand extinguisher containing carbon tetrachloride or something similar is highly effective against gasoline or oil fires, hence it is much used in automobiles and garages. A fifteen per cent. reduction on the fire insurance premium for automobiles is usually allowed, when the car is new, if equipped with an extinguisher of this kind.

Fire extinguishers, like other fire appliances, should be inspected regularly; their chief value lying in their being always ready to guard your house or buildings against fire.

PLANNING THE HOME GROUNDS

Among your New Year resolutions perhaps was the firm intention to improve the looks of your home during the coming season. You will need to remember that nothing succeeds without a plan. It is not enough to read this suggestion and make a vague, indefinite promise to yourself that you are certainly going to do something to improve your place.

Was it that bunch of shrubbery in the middle of the lawn, always in the way of the lawn mower, or of something else, that you were going to move over to the side where it belongs? Shrubby is a great addition to a home when it is properly placed but it must be remembered that its value depends almost entirely on its location. The handsomest bush that ever grew may be ruined by putting it in the wrong place. If any one of yours is not placed to the best advantage, now is the time to resolve to move it.

Shrubby has several uses. It may be used to fill up corners, such as the angles between the front steps and the wall of the house or the corners of the yard. Planted on either side of the end of a wall, it defines the wall and prevents people from cutting corners. Inside of the curve of a walk it serves as an apparent reason for an otherwise useless curve. Nothing looks more ridiculous than a walk which wanders aimlessly across a lawn without any obvious cause for its windings. A path across an open lawn should be straight or only very slightly curved. If you must curve it, plant a reason for the curve.

Still other uses for shrubbery are as screens to block out unsightly objects, to fill hollows, to reduce the apparent height of walls or banks, to serve as a background for smaller flowering plants or to break hard unsightly lines.

Unreasonable as it may seem, a yard may be partially filled with shrubbery and its apparent size greatly increased. This is accomplished by planting in groups along the sides with openings in between so that the outline of the yard is irregular with little bays running back into the shrubbery. Do not plant shrubbery in a straight line unless you want a hedge. It looks awkward.

Or perhaps it was some trees which you were going to plant, or a walk which you were going to build or change? Whatever it was, plan it now. Get it on paper and see what it looks like. It must be remembered that curves will seem greater and angles sharper on the ground than they will on paper, but it is nevertheless the only satisfactory way of getting a comprehensive idea of what the results will be.

One thing more to remember: in planning to decorate the grounds around the house, do not forget the barn and the other farm buildings. They, together with the garden, and possibly the home orchard, are all a part of the farm home and should be treated as such. The house and yard should not be decked out like a city lot and the other buildings left out in the cold as though they did not belong to it. A farm is both a home and means of making money but it is a home first, and therefore all the buildings should be treated as a part of the home.

If it is a windbreak you are planning—and this is an appropriate time to be thinking of a windbreak—it should be planned to include the whole home. It should not be closer than a hundred feet to the buildings and may be two hundred away so there is plenty of chance to include them all. The stock will appreciate it quite as much as you will yourself.

If you plant a row of shade trees in front of the house, extend it to include the barns, the barnyard and the paddocks. It ties them all to the home. Animals need shade as much as people.

Plan your drives in the same way. A good barn is something to be proud of. Arrange things so that it will show to the best advantage and then keep it in such shape that you are not ashamed to have it seen.

Of course, you cannot do all these things in one season, but plan them all now so that they will fit together and resolve firmly to carry out some part of it this year. It may be a small part, but do something!

It is sometimes forgotten that the herd sire needs the best of care if he is to live up to expectations.

The earliest form of "house" was probably a rough screen of branches of trees woven together and erected to protect the fire.

Modesty is the essential characteristic of mankind. The history of religions proves it, for man adores everything, positively everything before adoring himself.—Remy de Gourmont.

Pots and saucers are now made semicircular, with one flat side, so that two of them appear as one when placed together. By this device two dishes may be cooked at once with the gas required for one.

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