THE SUNDAY SCHOOL

MAY 1

Bible Teachings About Education. Deut. 6; 4-9; Proverbs 3: 13-18; St. Luke 2: 40-52. Golden Text—Prov. 4: 7.

Connecting Links—The ideal human society will be intelligent, as well as industrious. It will value learning as it values labor. It will seek the healthy development and growth of the mind as well as of the body. It will recognize that physical health and industrial efficiency are promoted by education, and will seek the best means and instruments of education. The training of its young folk will be, together with the feeding and clothing of them, its chief concern.

But this training and education will be twofold, having regard for character as well as efficiency, and aiming at the making both of good workmen and good citizens. It will seek the highest perfection of both mind and soul, both head and heart. The fine art of living together requires not merely diligence and skill, and effectiveness in toil, but also goodwill and sympathy, and patience. We have fallen upon times in which society, both national and international, has become exceedingly complex, and the right ordering of it demands the highest wisdom. We have become familiar with all sorts of theories, some of them exceedingly crude or even fantastic, of reform and reconstruction, and have heard again and again the cry of red revolution. Our safety lies in education, and a broader and better education, and an education founded upon Christian faith and morals. In an educated Christian people lies our hope for the future.

Deut. 6: 4-9. **Hear, O Israel.** The book of Deuteronomy, in its present form, comes to us from the early part of the seventh century before Christ. It is a new edition, prepared by disciples of the great prophets, Amos, Hosea, Isaiah, and Micah, of the ancient laws of Israel of which Moses was the founder. Its laws are on a very high level, and are accompanied by exhortations to obedience, based upon love to God and gratitude for all His great kindnesses to Israel. The book makes love the strong bond which binds Israel to Jehovah, and makes love, therefore, the ruling motive of conduct for all good Israelites. The section of the book included in chaps. 5 to 11 has as its text the ten commandments (5: 7-21), and contains a series of finely conceived and impressive exhortations to loving obedience, fidelity, and grateful remembrance of God's goodness.

The passage before us is held in high esteem by all good Jews, and is committed to memory and recited by them. They often carry out literally the commands of verses 8 and 9, writing the whole passage upon strips of parchment and upon door posts. We ourselves would do well to imitate them in learning it by heart (v. 6).

The first declaration is that Jehovah, the God of Israel, is "One." For Israel He alone is God. The prophets taught that He was God of all nations, and Creator of the world, and that other so-called gods had no real existence.

The commandment, Thou shalt love the Lord thy God is declared by Jesus to be the first and great commandment of the law, and is joined by Him with Lev., 19: 18 and 34 (Matt. 22: 37-39).

Thou Shalt Teach. This is first of all a command addressed to parents. They are to teach the laws of religion and good morals to their children. The reference is primarily to the ten commandments given in the preceding chapter, but it may very well include, in our application of it, all that the Bible teaches regarding our duty to God and to our fellow men. It is evident from such passages as 4: 9 and Exod. 12: 25-27 that the teaching was to include the history as well as the laws, and much of the history contained in the Old Testament books seems to have been written with this teaching purpose in view. The children were to be taught by story as well as by precept, instructed both in the history and in the law of their people. Through that instruction they were to learn to know and love the God of their fathers. Moreover the teaching was to be not simply by lessons learned in school, but also by talk and conversation, in the house and by the way, both evening and morning.

Prov. 3: 13-18. **Happy is the Man That Findeth Wisdom.** The first nine chapters of the book of Proverbs have been appropriately called the "Praise of Wisdom." The writer seems to have been a teacher of young men, for he frequently uses the term "My son" in addressing his pupils.

Wisdom is to him the divine plan of the world. It is personified as God's architect or "master workman." It stands for the divine order in both nature and human life, for both God's work and God's will. A man's wisdom, therefore, is in seeking to know God's will and to do it. It lies in ordering his life according to God's plan, for thus, and thus only, can he live a true life. See, especially 1: 7; 3: 1-10; and 8.

Wisdom is here presented as the source of true happiness, as the greatest wealth, and the most precious of all treasures. Wisdom promotes health and long life, as well as prosperity, and is compared to the tree of life in the garden of Eden. Those who ate of that tree would live for ever, and so those who lay hold upon wisdom find life eternal.

One can understand from this how it is that the New Testament writers represented Christ as the perfect example of wisdom, and the source of wisdom to all who follow Him. In Christ they recognized one who perfectly did the will of God. In Him they saw perfect faith and perfect obedience, and they sought to be themselves led by His Spirit. Christ was "the power of God and the wisdom of God" (1 Cor. 1: 24), and in Him were "all the treasures of wisdom and knowledge hidden" (Col. 2: 3).

A true education, therefore, will not leave Christ out. The knowledge of Christ, and of God in Christ, will be its crown and completion. Knowledge without the highest wisdom would be barren and unfruitful. St. Luke 2: 40-52. Luke's brief narrative of the childhood of Jesus culminates in verse 52, where He is presented as a healthy, well-trained and well-brought-up boy, advancing in wisdom and stature, and in favor with God and man, to a strong, intelligent, religious and social manhood.

Application.

In a new country such as ours we have to guard against many dangers, and of these not the least menace is ignorance. An ignorant man is dangerous. It is in the dark, unswept and unwashed places that vermin breed and disease begins. Let in the light—open the windows—this is the remedy for the unhealthy room. We must maintain in our land an aggressive policy of Christian education; we must keep the newcomers from Southern Europe and from other countries where there is little education, well-informed. We are not afraid of the light, we welcome it; but we have every reason to dread the darkened mind.

Fight the Corn Borer.

Observations recently made in Elgin County, Ontario, particularly in the district of St. Thomas, by officers of the Entomological Branch of the Dominion Department of Agriculture, and others, indicate that the European Corn Borer found in Canada for the first time in August, 1920, has come through the winter in a very healthy condition. The Department urges, therefore, the assistance of all farmers in affected districts, in the efforts which are being made in controlling this dreaded pest and preventing its further spread.

The borer or caterpillar is the destructive stage in the life of the insect and it is in this stage at the present time within corn stubble, pieces of stalk, old ears, or other parts of the corn plant which were large enough to shelter it during the winter. Farmers, therefore, should realize the importance of destroying, at once, preferably by burning, all unused portions of corn stalks, cobs, waste, etc. Crop refuse around silos and also that left during the winter in infested corn fields should be carefully gathered up and destroyed by burning. Felds within the infested district should be kept free from weeds, as the borer has been found in thick stemmed grasses, ragweed, smartweed, lambs' quarters, etc.—Arthur Gibson, Dominion Entomologist.

Making Biddy Exercise.

A fairly common practice among poultry keepers is to suspend cabbage or mangels in a string sack on a cord. The object of course is to encourage chicken exercise. I find it best, however, to hang the green food only a reasonable distance off the floor. Jumping is strenuous exercise. It brings parts under strain that the hen normally little uses. When a flock is laying heavily, there is danger of rupture if the cabbage is hung high. Dry, deep, new litter, in which scratch grain is sprinkled, is a better exerciser.

Cabbages and mangels may be spiked to boards or impaled on wall spikes. I like to split the mangels in half. Any green food can be mixed and fed in a hot wet mash.

An optimist is a man who believes he can grow even better vegetables than the catalogue shows.

Poultry

After years of experience in raising poultry on the farm, I find that my best aid in clearing the poultry houses of vermin is the kerosene brush.

For the eradication of the pestiferous red chicken mite I take an old brush and some kerosene, and go over all the roost supports, joints, seams in the nest boxes, uprights, and wall cracks with a penetrating coating of the kerosene. It is sure death to each and every mite it touches. I find that this is all the care needed in the hen houses, winter and summer, after the spring and fall cleanings and the usual whitewashings or creosoting of the interior surfaces, nests, and roosts. I examine the roosts occasionally in the winter, every three weeks in the summer, brushing the seams and joints with the kerosene. If there are any mites, they will appear. If none, you can be thankful. But if their numbers seem legion, go over every inch with kerosene.

And this is not its only use. If the scaly-leg mite appears in your flock, take up the kerosene brush again and paint the scaly leg with it, being careful not to touch any of the feathers around the knee joint. Usually one application will kill the mite that works and causes this scaly appearance of the legs; but if not, I continue the applications until the legs are cured.

The powder shaker, with a good commercial louse powder, is the easiest remedy for lice. But with a farm flock on range, with boxes of ashes and dust baths available, it is seldom that remedies will have to be resorted to. The average hen will take care of herself under ordinary conditions. I use the powder on the setting hens at least three or four times, being careful to make the last application a few days before the eggs are to hatch.

The Strawberry Plantation.

Whatever else is neglected, one should not fail to start a strawberry plantation during the spring. Any fairly dry area will grow strawberries. The ground should be one on which water will not stand during the winter to form ice.

Manure at the rate of ten to fifteen tons per acre may be applied and plowed under, or even more may be used to advantage if no other fertilizers are to be used. It is usually considered wise to apply five hundred pounds of a 4-8-4 fertilizer per acre. That is, one containing 4 per cent. of nitrogen, 8 per cent. of phosphoric acid and 4 per cent. of potash. However, if the soil is in good fertility this is not necessary and manure alone may be all that is necessary. All fertilizers should be scattered broadcast and harrowed in.

Thorough preparation of the soil by plowing and working deeply is advisable. The land is finally levelled with a smoothing harrow and the plants set in rows three and a half feet apart and fourteen inches apart in the row. Closer planting is unnecessary and does not permit of easy cultivation between the rows and opportunity of picking without tramping on the vines.

The planting is done by pushing a spade into the soil, pressing it to one side and dropping a plant with roots spread fan-shape into the opening, holding the crown of the plant to the top of the level soil and pressing the earth firmly around the plant with the heel or some other way, and finally levelling with loose earth around the crown of the plant. This is quickly done. The importance of pressing the soil firmly around the plant is very great and the plant should be sufficiently firm, so that if the plant is pulled by a leaf the leaf will break before the plant will pull out. Only young plants should be set; that is, plants of the previous season's growth. The planting should be done early, in fact, the earlier the better. Much of the failure with strawberries is due to late planting. This is a job that can be done in the early spring, the sooner the plant becomes established the earlier the formation of runner plants, and the earlier these runner plants form, the larger and better developed are the crowns, without which strong stalks of well formed fruit are impossible.

The summer cultivation should be shallow to kill weeds and form a loose surface in which the plant can root without difficulty. As the runners develop the cultivator should be narrowed, so that the runners are not disturbed after they commence to form plants and great care is necessary to avoid disturbing the plants at this time. Some of the runners may be shifted to give a more even distribution of plants along the row, and some hand hoeing will be necessary to prevent weeds from growing later.

It is wise to plan for a new plantation every year, as it is difficult to keep weeds under control the second year without much hand hoeing.

It will be found that the Senator Dunlap is one of the best varieties to plant. Blossoms are likely to develop on the spring set plants and these should be removed to throw all energy into the development of runners as early as possible.

Success is ten per cent. opportunity and ninety per cent. intelligent hustle.

My Visit to England's Glass-House Farmers

The little river Lea, rising in southern Bedford, flows eastwardly across Hertford to the border between Hertford and Essex, where it is joined by the Stort, coming down from the north, and, turning south in a broad, flat valley, it reaches the Thames near the eastern limit of London, a total course of some 50 miles.

In this Lea Valley, there has grown up a great glass-house industry, more than 1,000 acres now being covered with glass in a district some 12 or 13 miles long, in which are half a dozen towns and cities of 5,000 to 50,000 population each.

The men engaged in this industry had become so impressed with the value of scientific research in the problems related to their work, largely as a result of the Rothamsted investigations, that in 1913 they decided to establish an experiment station in their midst, having for its sole object the study of these problems. They therefore organized an association for this purpose, under the name of the Nursery and Market Garden Industries Development Society, Limited. In the spring of 1914, a site of about two acres, within the limits of the town of Cheshunt on the main London to Cambridge road, was purchased and buildings were erected, consisting of an office, one botanical and one chemical laboratory, five cucumber and five tomato houses, and an isolation house for pot experiments and disease inoculation work.

The county councils of Hertford and Essex made small grants in support of this work; the Duke of Bedford contributed $2,000; the members of the society raised among themselves about $4,000 for construction and as much more for a maintenance fund, and the National Board of Agriculture and Fisheries agreed to furnish nearly $10,000 for construction and maintenance. The equipment was not completed until September, 1915, and by that time the war had seriously interfered with the work, although the work was kept alive and some progress was made during the strenuous period of the war.

From the outset the work has been closely associated with that at Rothamsted, a part of it being conducted in the Rothamsted laboratories. With the end of the war increased interest was taken in the work of this station. The number of shareholders increased, and the larger annual subscriptions permitted the employment of specialists in entomology and plant diseases. Some idea of the character of the work may be gained by the following brief summary of the work reported for 1919:

In an experiment on slow versus forced growth of tomatoes the forcing of the crop by raising the heat caused an earlier ripening of a small part of the crop, but decreased the total yield by about 10 per cent.

Houses in which the moisture in the air had been increased by overhead spraying have given somewhat larger June pickings of tomatoes, in three seasons out of four, than those not so treated.

In experiments with fertilizers on tomatoes the omission of nitrogen increased the yield, while the omission of potash caused a material reduction in yield. The largest yield was produced by phosphates and potash combined. No further increase was produced by the addition of manure to the chemical fertilizers.

In the case of cucumbers, increasing the temperature above 85 deg. F. sufficed to prevent the leaf-spot disease, and considerably increased the weight of the early pickings as well as the total yield.

Experiments in soil sterilization are being made in co-operative commercial greenhouses, under the guidance of extensive research conducted in the Rothamsted laboratories, in which the effect on the soil and on the growing plant of a large number of chemical substances is being studied in comparison with steam.

Most of the difficulties encountered by the gardener, under glass, are due to microscopic soil organisms. These, under the glass-house conditions in which the natural action of such organisms upon each other is interfered with, attain an importance that is not reached in the open field. Among these are the nematodes (small eelworms that infest the roots) and the bacteria and fungi that cause the "damping off" of seedlings, and some forms of blighting of the mature plant. All these may be reached by soil sterilization; but there are other organisms in the soil that are beneficial—for example, the nitrifying bacteria. How so to adjust our treatment as to hit our foes without injuring our friends is a delicate problem of strategy calling for the most elaborate scientific research. To the solution of this problem a very large part of the resources of the Rothamsted Station are now being directed.—Charles E. Thorne.

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Minerals in Swine Ration.

It is true that mineral requirements for swine is practically a new thing in feeding swine, yet it promises to be one of the foremost steps in improved methods of securing maximum growth and health. Practical feeders for years have been allowing their hogs access to wood ashes and to charcoal or soft coal and the like for the supplying of these minerals. Such substances have been very good, and did supply some very essential material, and yet in the few experiments that are being made at any of the stations at this time will bring out some very valuable facts. Up to this time it seems that about the same errors are being made in the use of minerals to swine that were originally made in the earlier feeding tests, in which they attempted to argue from the complex to the simple rather than from the simple to the complex, which seems to be the logical way to approach these subjects. It took scientists many years to awaken to the fact that some things about our common feeding practices would never be understood until we began with the use of a very simple ration and then worked into a complex one, so that an accurate check could be made upon the true value of various feeding materials, under varying conditions. The wonderful discoveries made during the past decade have been ample proof that this was the proper method of making the feeding trails and more actual history as to the value of feeding materials than has been accomplished during several such periods previous to this time.

It is a common practice for some swine feeders to feed certain minerals not for any specific action which they expect to obtain, but simply because it has been a time-honored custom. Such agents as sulphur, copperas, charcoal, seem to have very little, if any, beneficial action for swine, and may, if not given properly, actually prove harmful, and yet swine breeders have long used them in their tonic and mineral mixtures. We must depend more on our late experiments to tell us about these materials. At this time sulphur is rarely used as a medicine by veterinarians, and then usually in an ointment for its effect in killing parasites of the skin. If it is taken into the animal's body in fairly large doses over a long period it may bring about a serious blood condition. It turns the feces, or manure, very dark in color and gives it a very foul odor, and should be given in very small amounts until we learn more about it.

Copperas, or iron sulphate, is a common remedy, and while it may be given in small quantities for some time, it can not safely be given in very large doses; our latest information on iron is that it is a food rather than a tonic or a medicine, and later day veterinarians use it in that way. It is also thought to be a worm destroyer, but tests have proven this without any foundation; it is very readily changed into another form when exposed to the ordinary atmosphere and if it was to be given it should be kept as nearly dry as possible. With the knowledge that we have of this material at this time it is doubtful if it is advisable to feed it to swine.

Charcoal is found in two forms, that which is made from wood and that from bones. The action of charcoal is that of an absorbent, and its function in the intestinal tract is to absorb any methane gas that may be generated in the intestines. This can be of value only in cases of fermentation, and then only for a very short period of time. Extensive tests have proven that it is eliminated from the body in the same form that it is taken in and has but very little use in a swine mixture.

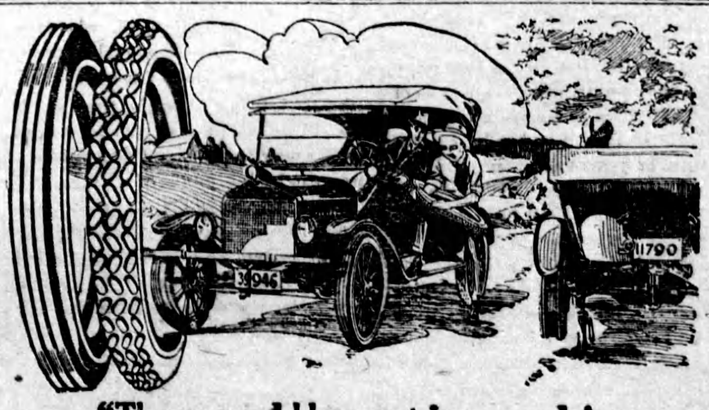
The minerals that are most likely to be deficient are calcium or lime, chlorine, sodium and phosphorus. These are the elements that enter into the formation of the skeleton in the larger amounts. It may be possible that iodine is sometimes needed, but this only in sections where there are hairless pigs, and that is due to the fact that in some sections the soil is depleted in these elements and therefore the crops do not contain a normal amount. This can be easily and cheaply supplied. The following materials furnish the minerals commonly used very cheaply and at a very slight cost: Sodium chloride or common salt, ground rock phosphate, ground bone meal, either raw or steamed, wood ashes, and many others. Common salt or sodium chloride furnishes both sodium and chlorine in sufficient quantities. Steamed bone meal or ground raw bone meal furnishes both calcium or lime and phosphorus; wood ashes or kainit furnish potash, but this is not so often needed. A very good mixture consists of equal parts of salt and steamed bone meal; another of salt and raw bone meal; another of salt and wood ashes; another of salt and raw rock phosphate very finely ground. All of these may be mixed equal parts and fed in a self-feeder.

Animals will consume about one pound of such mixtures each month; this can be provided for in this way: Mix a pound of the mixture with an amount of tankage that they will eat in about a month. If they are eating about fifty pounds of tankage per month, then add two pounds of the mixture to each one hundred pounds of tankage and you are certain in this way that they get that amount. If they are eating more, increase it, and if less, decrease it. This should be very well mixed and fed in a self-feeder; most animals will eat about this amount of it, if it is fed alone in a self-feeder; this will depend somewhat upon the individual.

It is not advisable to attempt to furnish all the minerals that are needed by the animal in this way, but there are certain feeds that are very rich in minerals, and much of the minerals should be supplied through them. Among these feeds are alfalfa and clover hay, bran and soy beans.

The hay can be, and should be, fed to brood sows in a rack during the winter months, or when they are not on pasture; sows will consume about one to one and one-fourth pounds per each one hundred pounds of body weight per day when it is fed in this way; the use of pasture crops, such as alfalfa, clover, rape and the like, also provide large amounts of minerals for the breeding and growing animals. The mineral requirements for swine need occasion the breeder no alarm; it can be very easily handled, and quite inexpensively also; all it requires is a little good judgment in the selection of feeds, and possibly some simple mixtures that we have outlined in this article.

Well-ventilated quarters that are clean and cheery, and supplied with an abundance of bright straw litter, tend to make healthy birds, and such are the birds that lay the golden eggs.



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