

CONSIDER YOUR TREES, HOW THEY GROW

BY ARTHUR HERB ERT RICHARDSON.

Every woodland owner, particularly the farmer, who desires to get the best from his trees must know something about their structure, how they grow, by what means they reproduce their kind, and what they require most to give them maximum growth.

The roots of a tree are the part of its structure which are least conspicuous, and which oftentimes receive little consideration. The largest of these, sometimes seen exposed where they join the trunk, serve as anchors to hold it in the soil and as channels through which food and moisture are carried to the rootlets to other parts of the tree. The extreme ends of the finest rootlets, found at the extremities of the root system, and most numerous directly below the outer edge of the area occupied by the leaves, carry on important work of obtaining food from the soil.

The trunk, stem, or bole, is of most economic importance and supplies saw-logs and cord-wood as the case may be. Its chief functions are to support the crown and to serve as channels by which food may be carried to and from the roots and leaves. If the trunk of a tree is cut through in sections five definite parts may be distinguished. In the center, occupying a small circular area, is the pith. Outside this, arranged in a series of rings and usually dark in color, is the heart wood. Next to this, and similar in structure, but lighter in color, is the sapwood. Beyond this and immediately under the bark, very narrow and usually white in color, is the cambium.

The crown is the most conspicuous part of a tree and is composed of branches, twigs, leaves, buds, flowers and fruit. The branches and twigs support the leaves and give them freedom in the air. The leaves perform the important function of manufacturing plant food. This takes place within minute granules of leaf-green or chlorophyll assisted by the action of the sunlight. Carbonic acid gas is broken down into oxygen and carbon. The oxygen is released and the carbon is united with water and minerals from the soil. This food is then distributed throughout the tree and is used in the growth of its several parts. Flowers, when they occur, are responsible for the fruit or seed, which is one way a tree has of reproducing itself.

HOW TREES GROW.

It will be readily seen from the foregoing that the roots and the leaves play a very important part in a tree's growth, and why due consideration should be given these by the owner of the woodland if the tree is to function properly.

Trees may be said to grow in two distinct ways. The leaves and branches reach out farther each year thereby increasing the crown of the tree, and the trunk and branches all increase in diameter annually.

Crown or upward growth in trees is accomplished by a stretching and dividing of cells at the extreme ends of all twigs and branches. At the end of each growing season, that is, towards the end of summer, a new branch with leaves and flowers in miniature is formed and wrapped up in a winter bud. In the springtime when the sap begins to run and warm days stir all vegetation, the scales on these buds unfold and the new growth is released. The cells then commence to divide and stretch out and the tree from this point of commencement only, puts on its height growth gradually throughout the ensuing summer. Once a season is ended the branches which have grown during the summer never increase in length again. This explains why a crotch once formed on a tree always remains stationary, or why a wire or hook placed on a tree remains at the same elevation. An appreciation of this crown growth is very necessary when thinning trees being done in the woodlot.

The trunk and branches increase in girth, or diameter, each year, by putting on a layer of cambium. This, as already mentioned, is situated immediately under the bark, and is built up gradually during the summer by food manufactured in the leaves. If this cambium is destroyed, the life, in that section at least, is ended, and it may mean the death of the whole tree. This explains why girdling is a sure means of killing trees.

The common trees reproduce themselves from seed. Flowers appear in spring or early summer, some of which, such as chestnut, locust and cherry, are quite conspicuous. Others, such as pine, ash and maple, are scarcely noticeable. Following the disappearance of the flowers, as is the case with trees of the orchard, the fruit with seed enclosed grows in size until maturity. Some trees ripen their seed in one year, others like certain pines, require two seasons.

Most hardwoods can also reproduce themselves by sprouts or suckers as well as by seeds. When such trees are cut down, new growth commences from the stump. Chestnut and basswood will produce as many as fifty sprouts from a single stump. In the case of some species, sprouts also occur from roots or pieces of branches placed in the ground.

LIGHT REQUIRED.

The amount of light which trees require varies with different species. Some require the unobstructed sunlight; others can stand a moderate amount of shade, such as spruce and hard maple, while others thrive in the dim light of overhanging trees such as beech and hemlock. Seedlings will stand more shade than mature trees, and all trees are very sensitive to a sudden change in light.

As a great deal of the improvement work which will be carried out in the woodlot has to do with the regulating of the amount of light among the trees, this important factor should be fully appreciated.

Soil moisture is also very necessary for tree growth. A large percentage of the tree is water and, consequently, if the moisture requirements are not sufficient to meet the demands of the species, the tree will not be thrifty. Moisture, more than any other factor, explains the presence of certain trees on certain areas. Even if the soil in different areas is the same, trees of different moisture requirements will not grow thereon to advantage.

Like other forms of organic life, trees demand food. A great deal of this they get from the air, the supply of which is sufficient for all. They also obtain mineral salts and water through their roots, and, as in the case of moisture, different species require certain kinds of soil.

Some trees such as the better hardwoods do best on deep agricultural soil. Others such as pine and hemlock are satisfied with sandy ridges and rocky hillsides, while willow and tamarack and other moisture loving trees like to get their toes well down into the water. —Canadian Forest and Outdoors.

Our Grocer Sells the Stuff We Can.

We sell our fruits and vegetables in glass jars through a local grocer. This brings larger profits than when we sell them fresh and it is convenient to have the money coming in through the winter months.

For home use my wife and I put up many foods in tin cans with a steam pressure cooker, but for market canned goods sell best in glass. We never can in large quantities, instead we work for quality and appearance. We select perfect vegetables and fruits that have just reached the right canning stage. These are arranged in the jars with the greatest care. This extra attention adds from 15 to 30 cents to the sale price of every quart. Poor packing would mean poor sales at any price. We sell our canned products through a local grocer on a commission basis. His customers take all we can supply. Last year this system added around \$300 to our farm income. —R. H.

To prevent saws from rusting, rub lard on the metal, then place them in a warm oven (not hot) for an hour.

If you have an electric-light plant, try putting a line to the poultry house. The lights can be turned on about 4 or 5 o'clock in the morning in winter, thus making a 12-hour day. The longer day results in greater food consumption; more eats, more eggs. Do not use lights on immature birds—only on strong, vigorous birds of good size.

Sunday School Lesson

February 23. — Gospel: Luke 11:1-13; Acts 2:42-47. Golden Text: —We are laborers together with God. —1 Cor. 3: 9.

ANALYSIS.

I. THE CHRISTIAN IDEAL FOR DISCIPLES. Matt. 5: 13, 14.

II. A PICTURE OF CHRISTIANITY AT WORK. Acts 2: 42-47.

INTRODUCTION.—Jesus gave his disciples an example and a law of service, and what we call social service in the Christian sense has its roots entirely in him. He formed his disciples into a community or church, and the ideals which he gave them may be summed up in the two words, salt and light. The first of these words points to the need of self-sacrifice on the part of Christians; the second refers to the constant duty of the Christian community to enlighten the conscience of the world.

I. THE CHRISTIAN IDEAL FOR DISCIPLES. Matt. 5: 13-16.

V. 13. The disciples of Jesus are to exercise the same influence on society as salt does on the foodstuffs or other materials to which it is added. The disciples would as fishermen be acquainted with the preservative qualities of salt, for a considerable fish-curing business was carried on around the Galilean Lake. But the disciples would also know that not everything that looked like salt had the real properties which made salt valuable. On the shores of the Dead Sea, for instance, it was possible to find a curious deposit which looked like salt, but which really consisted of salt mixed with other inferior materials. As this mixture weathered, the salt would often be washed out by the rain, and only a worthless crust of earthy matter remained. To this useless mixture Jesus here compares disciples who have lost the essential qualities of Christian character. Disciples, he said, could only be a preserving and wholesome force in the life of the world if they had "salt" in themselves. Otherwise corruption would spread apace.

As to the quality thus pictorially described as salt, there can be no doubt, Jesus meant the spirit of sacrifice, as we see by comparing Mark 9:49-50 and Luke 14: 27-35. Disciples who will not show a self-sacrificing spirit are useless for service. They have not the one thing needful, by which to preserve the good or keep away the

FEEDING THE WINTER BIRDS

Of all the games which you may play during the winter months there is only one of which you can say that the colder it gets the more fun it is. This game of sport is feeding the winter birds.

If you want to enjoy a three-ling circus and at the same time possibly save the lives of some of your bird friends, now is the time to start your outdoor restaurant, as midwinter with its snow and sleet storms is a hard season for the brave little feathered fellows who stay on the farm during the cold months.

And of all the sports which you can take part in, feeding the birds is just about the only one which can be enjoyed while sitting in a chair in the house, for by making a little food shelf for the window ledge you can sit down where it is warm and watch the birds gobble up the nourishing food. One day last winter we laughed for ten minutes at the antics of a pair of birds on our feeding table as they scolded, quarrelled and fought like two young puppies after the same bone.

Here are some suggestions for starting your bird cafeteria: You can clear the snow from two or three places and scatter grain, bread crumbs, meat bones or chopped suet which will attract several kinds of winter birds. Suet is probably the most popular food for birds that eat insects.

One of the best ways to serve suet is like this: Take a piece weighing a pound or more and tie it to the branch of a tree, but be sure and encase the string over the suet many times. The idea is to keep some greedy bird from running away with too large a piece. Tie the suet on the underside of a branch. In this position the chickadees, nuthatches and woodpeckers can reach it, as they are regular acrobats. I always put suet on trees near

will. Such disciples are powerless to save men from themselves and sin. Vs. 14, 15. The disciples of Jesus are also to serve as a light to mankind. Preachers on the Galilean Lake depended at night on the shore lights to guide them, and they knew that if a light stood up high on the hillside, its light would always be visible. So Jesus says that his disciples are to hold the light of truth high where all can see it for themselves. Candles or lamps are not lit in order to be hidden under an upturned bushel measure. They are set on the stand or lamp-stand that all the people in the house may see.

The quality here called light consists in the spiritual truths of the gospel of the kingdom of God which Jesus had "revealed" to his followers. These truths have remained hidden from the mass of men (see Matt. 13:11), but they have been made known to the lovers of Jesus, and the latter must hold the torch aloft.

V. 16. The Christianity is to be "practical." Disciples of Jesus are to be a shining example of good deeds. The seeing of such deeds will help men, and lead them to give praise to God. Christian lives should be such as to make men think of God.

II. A PICTURE OF CHRISTIANITY AT WORK. Acts 2: 42-47.

The picture which is here unfolded is drawn from the beautiful springtime of the Christian church. The church in Jerusalem was a conspicuous example of the qualities of salt and light at work in the world. In other words, it gave the world a splendid illustration of self-sacrificing service and unflinching loyalty to truth.

V. 42. The first thing remarked upon is the constancy with which the early Christians attended the services for public worship and instruction. They were always in their places when an apostle was announced to preach; they treated one another always as brethren in the Lord; their simple observances of the Lord's Supper were a joy to behold; and they prayed without ceasing.

V. 43. It was not, therefore, to be wondered at that fear, or a deepened sense of awe, came over the people of Jerusalem, and that the apostles were inspired to extraordinary deeds of spiritual power and influence.

Vs. 44, 45. But the most remarkable thing about the early Christian church was its conspicuous kindness in providing for the poor. Christians who had great possessions sold them, and applied the money to the relief of their less fortunate brethren. The economic distress in Jerusalem was due to causes unknown to us. We may conjecture that widespread belief in the nearness of the last day was one factor in the disturbance. It is also possible that some Christians had suffered loss of employment or trade be-

FOR HOME AND COUNTRY

Education and the Institute.

The Institutes of Western Ontario are carrying out an excellent educational program. Home and school committees have made possible many improvements in the buildings and many help to sanitation and ventilation, thus making both teachers and scholars healthier and happier. Pianos, victrolas and lights have been placed in several schools. School grounds have been improved, flowers, shrubs and trees planted, also swings and teeter boards installed. Prizes were given for general proficiency, books donated to the school library, and school fairs helped to success by the Institutes. Many branches have organized groups to put on debates, plays, and musical contests. School field days were also helped.

While intensely interested in the welfare of the schools and the young people, the members do not neglect their own education. For that reason, the programs of the meetings usually contain something of educational value, papers on current topics of interest, study of new laws, discussion of proposed legislation. Some programs show great interest in the study of our own and other lands.

About two years ago, one of the leading weeklies gave a moral code for school children which was intended to impress on the children's mind the way to become a happy, useful citizen. The final precept is worthy of quotation: "I must do all these things because I am accountable to God and to humanity for how I live and how I help my fellows, and for the

subject to which they may trust me." If education teaches children to live up to that code there will be no need to worry over the future of the country.

Some other educational features were: A number of Institutes sent members to the Girls' Conference; Ruthven and Hampstead also had social evenings for the scholars, teachers and school board. Drumbo placed a Book of Knowledge in the school. Cranlin held an oratorical contest. Kent Bridge has an education committee and furnished the teachers' room. Watford placed burlers in the schools. River Road gave playground equipment; also hot lunch supplies. Reid's Corners gave prizes for Essays on Canada. Barrow Bay supplied an oil stove and other necessities for hot lunch in two schools. Bothwell has two members on the school board and had a lecture by a university professor. Rodney reports an interesting lecture on astronomy by Professor Kingston. Thames River placed a medicine kit in the school. Irwin's institute gave prizes for regular attendance and punctuality. Ridgeway held an "at home" to get acquainted with a new teacher. Their musical festival was a great success. Dorchester hired a music teacher for the school. Kent Bridge reports a very successful choral festival. Cedar Springs and South Hawick gave prizes for the school fair. Libraries in good condition were reported by Granston, Parkhead, Sombra and Thorneshurst.

Prepare Now for Next Year.

It is generally considered among poultrymen that the production of eggs is the most profitable branch of the business. It must also be conceded that for most people a crop of chickens must be reared annually, and the surplus males and old hens sold, at a profit, if possible.

Many people appear to believe that the secret of getting eggs, particularly in winter, is in the feeds given and the method of feeding; others believe the whole problem is in the breed or strain; while others think that the housing is the problem to solve. All these are important, but the main reason for poor results in the opinion of the writers, is a lack of careful work months before the eggs are wanted. While you are collecting the high-priced winter eggs you should be making careful plans to secure the crop of pullets for next season.

The factors are feeding, housing, age of stock, strain, possibly breed, attendance, cleanliness and the weather. All of these may be more or less controlled, with the exception of the weather, and it is perhaps the least important factor.

Some troubles are: Overcrowding in houses; stock of mixed ages, that is, there are two-year-olds and upwards, early pullets and late pullets; surplus cockerels; dirty, moist houses; wet and dirty litter.

Where eggs in winter are wanted the early hatched pullet is, without doubt, the one to depend upon. Yearling hens and those older are very rarely good producers during November and December. They are uncertain even in January and February and really do not begin to lay well until March. Where the egg production falls below fifteen per cent., during the winter months, one is not making much profit. The age at which most pullets begin laying is from six to seven months; some lay at four and one-half to five months, and others not until eight or nine months of age. This means that if a fifty per cent. egg yield is wanted in November the pullets should be hatched during March or April; May hatched pullets will lay a little, but, as a rule, not forty or more per cent. daily.

The attendant has responsibilities. There should not be any neglect on his or her part, but careful, constant, regular attendance and a keen interest in the welfare of the birds. A bird that has stopped laying is very hard to start. As pullets mature they commence laying; it is the attendant's work to keep them going.

"It's better to know to say nothing than to know nothing to say."

A New Market for Eggs.

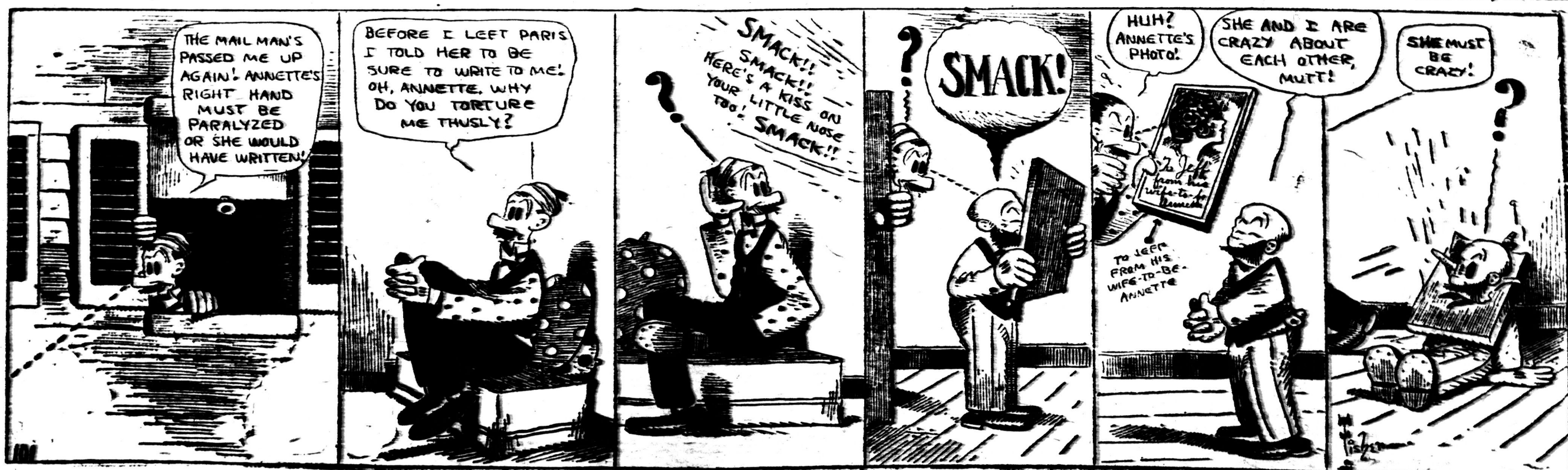
Drug stores, particularly those that do a large business over their soda fountains, are frequently good markets for eggs. Drug stores are rapidly increasing the practice of serving light lunches and the egg-and-milk drink is more and more becoming a popular part of such lunches. High-class drug stores desire strictly fresh eggs for this purpose and will gladly pay good prices for them. Some make a point of advertising that the eggs served over their fountains are obtained from this or that farm. They use on an average from 10 to 40 dozen eggs a week and will usually pay the same prices that a farmer can get by delivering eggs from house to house to his city customers.

Our Cistern Lid.

Our cistern is at the end of the porch and the pump in our kitchen. When the first cement was mixed we leveled on the ground a place a little larger than the lid-to-be. On this level ground we laid an old auto rim and filled it evenly with cement. We leveled it off nicely and by the time the cistern was done the lid was hard. We did not put any handle on it, as the auto rim made a fine place to grasp the sides. It fits perfectly. We like it, and it is heavy enough that little children cannot move it. We left the rim on the lid, which makes it all the firmer. —B. W. J.

Chisels and plane bits will cut better if the edges are first ground down on an emery wheel. This gives a slightly concave bevel. Then if the edge is finished off on a good oil-stone, it will be in good shape. Moreover, the edge can again be put on quickly when use makes it dull.

MUTT & JEFF—By Bud Fisher.



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