

## The Farmer's Advocate AND HOME MAGAZINE.

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DOMINION.

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quotations absolutely set the market for British Columbia apples, and they are the dominating feature of that market." However, the Province on the Pacific increased the output from about 200,000 boxes in 1909 to 800,000 in 1915. This is pretty good evidence that the Ontario producer is suffering from American competition as well as the grower in British Columbia, and it is the former, perhaps, who is being squeezed out of the Prairie market. The growers of British Columbia have felt this influx of fruit to such an extent that they are asking the Government to consider or grant to them some degree of protection. They claim it to be a condition for which there is no analogy, and one that never occurs in the world of manufacture, for a great quantity of these "C" grade apples actually sell far below the average cost of production. The effect of it all has been to lower the price and debase the market. Growers, both in Canada and the United States, should right about face and endeavor to improve rather than to prostitute the market for apples. In 1915, in Ontario, it was necessary to provide means of selling apples that were blemished but of utility value. However, in normal years great care should be taken to place before the public only the best, and only superior quality should be offered in 1916 if our orchards produce as we now expect they will. There will be sufficient of the best to supply the trade, and it will be better policy to sell the good and destroy the bad rather than have a weak market for all grades. Fruit growers' associations could do much, the continent over, if they would admonish their members to allow only the good article to be distributed, and thus strengthen the demand for the product of the careful grower, which all should aim to become.

Newspapers have been forecasting a poor, maple syrup season, because of the open weather in January. There is time enough for winter yet. Though an open winter may affect the quality of the sap, the quantity of the flow depends upon the weather at the usual syrup-making season, and not on the character of the winter. Taking care of the sap will bother most farmers more than getting it.

### Preparedness.

Whether or not the Parliament Buildings' fire was of an incendiary origin, and whether or not the various other recent fires in munition plants and buildings in which work on goods for the Allies is being carried out were started by an enemy torch or bomb, Canada cannot afford to take any more chances upon the safety of its public buildings and manufacturing plants essential to the welfare of our nation. It will be well to heed all warnings, whether they seem of a jocular nature or not. One thing is certain, if we are prepared for all contingencies property and human life in this country will be safe. The last eighteen months should have served to teach a lesson. It is not wise to take anything for granted in this time of colossal strife and unprecedented frightfulness. Perhaps the much-talked-of invasion of Canada by Hun sympathizers in the United States is a joke, but Canada should make it impossible, by preparation in this country, for any such disturbance to take place. Every munitions and army supply manufacturer should guard his plant for his own and for his country's good. And every government building and every big industry vital to Canada should be carefully guarded. This is not an alarmist idea; it is simply precautionary. It is always better to lock the door before the horse is stolen.

### Nature's Diary.

A. B. Klugh, M.A.

We now come, in our consideration of plant formations, to that formation composed of the Coniferous trees. These trees, which are also termed cone-bearers or evergreens, occur on soil which is either physically or physiologically dry, either permanently or at some season. Where they occur on sand or in bogs the environment is permanently dry, while in northern countries where the winter is severe the environment is dry at that season. On mountains, where the soil is dry on account of the slope, and where the cold season is prolonged on account of the altitude we find all the trees are conifers.

The adaptations of these plants are particularly interesting to us in Canada, because such large tracts of our country are covered by this formation. These adaptations are: The leaves are reduced in surface area and tend towards the "needle" shape; they have an extremely heavy cuticle, which protects the underlying tissues; and the stomata are sunken. All these diminish the amount of water which is lost by transpiration by the leaves, and consequently conserve the water in the plant.

These trees are not only fitted to withstand dryness, but also heavy falls of clinging snow. This we pointed out at the time of the severe "ice-storm" which occurred three years ago over part of Ontario. The deciduous trees, in which the branches come off from the trunk at an acute angle suffered very greatly, branches being broken off, and in some cases trees being split in two, while the Coniferous trees, in which the branches come off nearly at right angles to the trunk, merely had their branches bent down, the branches coming back to their original angle as soon as the ice melted, so that these trees come through uninjured.

Next we have to consider the Dry Thicket Formation, a formation made up of trees and shrubs adapted to a soil which is moderately physically dry. This formation is not as well defined as most of the others, and as it occurs in many regions it grades off into the next. Typical plants of this formation have hairy leaves, or leaves covered with raised scales, or leaves with a heavy cuticle. In Eastern Canada we have practically no areas covered with this as a primary formation, though it occurs as a secondary formation on land which has been severely burned over. By a primary formation we mean one which occurs naturally, by a secondary one due to the action of man, this is one of the points which the worker in plant ecology has to be extremely careful about when working in a region which has been settled for some length of time, lest he mistake secondary formations for primary ones.

Our last formation is that which consists of mesophytes, that is, of plants which grow under medium conditions of moisture. The mesophytes are what are termed "ordinary plants," and since they live under medium conditions we do not find in this formation the adaptations which are developed by plants of other formations to guard against untoward conditions. However, we find some interesting adaptations even among mesophytes. In Southern Canada the primary mesophytic formation is the deciduous forest. The deciduous habit is in itself an adaptation to enable the plants to live through a period when condi-

tions are not favorable for the activities of the plant. The thin leaves of deciduous trees are very efficient for carrying on photosynthesis (the changing of the carbon dioxide of the air and the water of the soil into starch) respiration, transpiration (the eliminating of surplus water, etc.) but they are not at all well adapted to withstand the dryness incident upon the cold of winter. Consequently they are shed, this shedding taking place in a manner which we have already described when dealing with plant physiology, and the trees are then sealed up in a practically waterproof covering, so that at a time when little or no water is taken in, no water is lost.

When we consider the deciduous forest formation we include not only the trees which give it its name, but the herbs which grow on the forest floor. They also have their adaptations. Many of them are plants which put forth their leaves and flowers early in the spring, before the leaves on the trees above them have attained full size, and, therefore, at a time when plenty of light reaches them. They are all perennials, with underground parts, bulbs, corms, or root-stocks filled with food ready for a rapid development as soon as conditions in the spring are fit for growth. This is known as the vernal habit, and all our herbs of the hardwood bushes which are commonly known as "spring flowers" possess it. Such other plants as grow in the forest, and which send up leaves and flowers later in the season have leaves adapted for carrying on their work in a subdued light.

We have now considered in turn the different plant formations which are found in Canada, and the adaptations of the plants which compose them. We have shown that viewed in this new way the study of botany takes on a new lease of life. If, however, we leave our study of plant ecology here we miss the most vital point of the whole matter—the dynamic point of view, the idea of change. This aspect we shall deal with in our next and concluding note on plant ecology.

## THE HORSE.

### Lameness in Horses IX.

#### SPEEDY CUT.

Speedy cut or speedy stroke is the name given to an injury on the inner surface of the fore leg, on or below the knee, usually on the lower portion of the inner surface of the joint. The injury is caused by the horse striking his leg with the shoe of the opposite foot. In rare cases the injury is above the knee, and also may be between the knee and the pastern. Horses whose toes turn outwards when standing are very liable to this accident, as, when the foot is raised and brought forward, its toe turns inwards towards the opposite leg, and the seat of contact will, of course, depend upon the height of action. Only horses with reasonably high action will strike on or above the knee when trotting, but when galloping any horse whose conformation predisposes to the accident may do so. When a horse strikes himself in this way he is liable to fall from the intensity of pain it causes, and thus endanger the safety of his rider or driver, and probably injure the front of the knees by coming in contact with the ground. Horses whose conformation predisposes to the accident are undesirable, except for slow work, and especially unsafe for saddle work. Horses on whose knees appear scars, enlargements, etc., which indicate former wounds from this cause, may justly be considered unsound, since they indicate a fault which may, at any time, interfere with the animal's usefulness.

**SYMPTOMS.**—While lameness is not always present, the symptoms are easily detected. There will be swelling and heat and tenderness of the injured part. In some cases there is an abrasion, but in most cases the wound is due to concussion, and no wound of the skin is noticeable. The swelling varies greatly in size and consistence. It may be comparatively small and hard, or large and puffy, indicating to the touch that it contains a fluid, which may be either serum or pus, generally the former. There is heat, and usually tenderness to the touch, and it may or may not be accompanied by lameness. When the contusion has been severe, and near or upon the joint, there will be lameness more or less well marked.

**TREATMENT.**—Preventive treatment is much better than curative. Horses that are predisposed to the injury, on account of conformation, should be shod with the idea of preventing it. In some cases, quite light shoes on the fore feet will so reduce the height of action as to cause the foot to pass the opposite leg between the knee and fetlock, when, unless the horse rolls to a considerable extent he will not strike (horses with the peculiar action noted are said to "roll.") In other cases where action is low, and the animal hits his fetlock, shoeing with heavy shoes will so increase the height of action as to cause him to go higher than the joint, but not so high as the knee, hence avoid striking. In some cases the use of three-quarter shoes will