

ities"
ts daily
A"
ORTH
kets Only
DA," Toronto



e
a day
by it—
t when

your
etter.
your
othes
both
e hints
o you.
CO.

467

Leghorn cockerels
h. David A. Ash-

White Leghorn cock-
birds, \$2 a pair and
eggs, Ideal Poultry

Minorca cockerels.
nce Co., Ont.

Wyandottes. W.
Ont.

s, heavy toms and
C. A. Powell, Arva,

best egg-producing
s. A grand lot of
ario Poultry Yards,

nners at leading
known. Stock for
s in season. Write
nneautville, Penna.
winners. Booklet
land, Ont.

large-boned; bred
Hoffman, Ridge-

augers, well-boring,
ap, cables, fixtures,
es and doors, etc.,

etoria, B. C.

settlers for stump
-inch green stumps,
at each sitting; 30
and upwards.

HIS PAPER.

The Roundabout Club Concluded.

ciety as a great economy. It increases both the skill of the individual and the efficiency of the whole body. This principle is brought to a high degree of perfection in a tree. The leaves require much air and light for the work they have to do. They are therefore very large and thin in the majority of trees. Being light in weight, the tree can easily support a large number of them. The little rootlets and root hairs have extremely thin and delicate walls. They must absorb water and soluble foods from the soil, and at the same time keep back impurities. The tip, or cap of the root, on the other hand, is hard and thick. It has to force its way through the earth as the root becomes longer. The stem, or trunk, is very stiff, hard, and strong, but at the same time, porous. It supports the upper organs of the tree, and forms a conduit by which food may pass from the roots upward, and from the leaves downward. Of course, not one of these could possibly do the work of another.

When the seed of any of our trees falls into suitable soil and germinates, two distinct parts may be observed, one growing upward, the future trunk and branches, and the root pushing its way deeper down into the soil. Under all conditions, whether light be present or not, this relation will be preserved. What is the stimulus that regulates these phenomena, and how does it act? The most careful microscopic analysis has utterly failed to give a satisfactory answer to these questions.

The effect of light on our trees, and indeed on all plants, is very marked. The leaves are usually set so as to receive the maximum of light, and if for any reason the light should be shut off on one side, the leaves on that side will very soon change their position to suit the altered conditions. In time, the whole tree will be affected, causing a lean to one side. For this reason, trees which grow close together have long, straight, bare trunks. The light comes chiefly from above. Here again, in the relation of plants to light, lies a problem which the most learned scientist has not adequately solved.

These are unexplained physical facts in connection with a common tree. In its life activities are even more abstruse problems in chemistry. When we think of the science of chemistry, we are apt to see in imagination a druggist's shop with its rows of bottles, acids, and all kinds of evil-tasting salts. In other words, we think of inorganic chemistry, or that which is not related to life processes. We would class such substances as wood, seeds, foods of all kinds, as of an entirely different order, as indeed they are, but for one reason, only—their extraordinary complexity. It is only in recent years that science has applied itself to the study of these compounds.

Only in the intricate laboratory of living things can the majority of these substances be produced. The delicate odors of flowers, the flavor of the nectar, the coloring of the flowers, and of the leaves in autumn—all these are chemical compounds, so extremely elusive that they have been isolated.

The essential constituent of all living cells is the remarkable substance called protoplasm. It has been analyzed, but little is gained by this means, for, it must be remembered that it is not living, but dead protoplasm which undergoes the analysis. It is the mysterious quantity called life which is the governing and selective power by which all the activities of a living tree are carried on.

It is not necessary to go to the full-grown tree to find the seat of this power, and the qualities which determine the individuality of a tree, or species of trees. In the ripened seed lie dormant all the characteristics of the parent plant, which are transmitted to the next generation. Indeed, if we examine this seed, we can eliminate a large part of merely a store of food, and again we can eliminate till we get down to the protoplasm of a few cells, and their governing nuclei. In one of these nuclei, itself of microscopic size, lie the powers and promise of the future giant of the forest. These determinative qualities are called rudiments. Their nature, however, can only be surmised.

One of the most remarkable things

See that the Piano you are thinking about buying is par value for your money

BUYING pianos on faith may be popular, but it's not good business. We always strongly advise a careful examination of the best pianos made before buying. Even when people are inclined to buy the Sherlock-Manning we advise them to investigate other makes—to compare our pianos with the best made and form their own conclusions. We know the

Sherlock-Manning 20th Century Piano

"Canada's Biggest Piano Value"

possesses every feature making for piano excellence—that its sweet singing tone is lasting—that the instrument is built to endure.



Style 70

Our factory is thoroughly modern in every way—equipped with the latest labor-saving machinery, and our employees are highly-specialized proficient men who joy in their work. This combination assures the highest possible piano value at the lowest cost consistent with quality.

But, we have some inside information which we would like you to consider before buying a piano. We can show you how you may own a Sherlock-Manning 20th Century—one of the world's best pianos—and yet save considerable money.

Write us direct, and we will tell you where you can see a Sherlock-Manning—how you can save \$100, and yet be perfectly sure that your piano is par value for the money

Sherlock-Manning Piano & Organ Co.

LONDON

(No Street Address Necessary)

CANADA

HACKNEY AUTO PLOW

Plowing
Seeding
Discing
Harrowing
Harvesting
Threshing

Wood Sawing
Orchard Work
Road Grading
Feed Grinding
Cutting Ensilage
Hauling Loads
Etc.

DO your Plowing, Seeding, and all other work on the farm where power is needed, with a **HACKNEY AUTO PLOW**—the great *One-Man* machine—universally known as the greatest labor-saving device for the farmer ever invented, the *only* tractor that can be worked *economically* on farms of average acreage. It eliminates drudgery, solves the vexatious labor problem, and enables you to do your work better and cheaper—when weather, soil and crop conditions are all in your favor.

The Hackney Auto Plow may be equipped with disc plow, disc harrow or road grader attachment—attached in same position as mould-board plows shown above.

Before you buy a tractor we want you to investigate the Hackney Auto Plow—the one-man outfit. Our catalogue, describing the machine in detail, photographs and testimonial letters from users will be mailed on request.

Hackney Manufacturing Company
618 Prior Avenue St. Paul, Minn.

about a plant are the cells. A tree is an aggregate of millions of them, yet each one has its special place in the economy of the tree. Some, with their thickened walls, form strengthening tissue; some form various kinds of conductive tubes; others are concerned in

the intricate processes of reproduction; still others in the collection and manufacture of food; yet, in spite of the greatest diversity of form and function, all these cells are blended into one beautiful and harmonious whole.

Although the economy of the tree will

bear the closest scrutiny, there is still visible a different purpose, illustrative of the truth, that the earth was made for man. The forms of the leaves, the brilliant autumnal color effects, the quiet beauty of the whole tree—is there not in these things an indication of a