a great commercial and industrial principal stolen, a wonderful forest paradise and stock-grazing area destroyed, and the great natural reservoir that is the life of the thirsty prairie, removed. Think you the splendid agricultural prospects of the Westland would remain unaffected—unaltered ?

We realize now that a part of this great Dominion of ours was designed and intended by nature to remain in forest. And a good work has already been accomplished by the setting aside of reserves, only, in time, these will be known, not as reserves, but by the less-forbidding name of national forests. The settler, railway, prospector, lumberman, shall no longer be known as "enemies" of the forests, but enlisted as its friends.

Great strides have been made in the advancement of forestry in the United States, while we find that Europe, from long experience, is able to teach us much. From a statement made by our Forestry Branch at Ottawa, in reference to the great crops produced by European forests, we learn that, "the same principle holds true for forestry as for agriculture, the more carefully and intensively the land is handled, the more profitable are the returns." Thus, we see, that forestry is not the leaving of these lands in a state of nature, but it is working hand-in-hand with nature, to guard and care for the forests, to provide means for its future development.

And in the not far-distant future, we Canadians, thanks largely to the good work being done by the Forestry Association, will have a permanent forest policy, when all reserves shall have a complete survey, the cost of their maintenance derived from the developments within the reserves.

In conclusion, one might just make mention of another line of work carried on in the Prairie Provinces, by the Forestry Branch. It is the encouragement given to farmers to plant trees even where natural conditions are not favorable. From the nursery station at Indian Head, trees are sent out free to farmers who will plant them, under certain conditions. From statistics, one learns that trees, at the rate of two and a half million per year, for the past two or three years, have been sent out, and altogether about twenty millions have been distributed among the farmers. All possible care was, of course, exercised, to give the trees a fair chance, but it was approximated that, under average conditions, eighty-five per cent. of the trees survived.

Think what this means—a farmer planting trees, not for ornamentation or shelter alone, but (in time it may be actually proved) for fuel purposes, when traffic on the railways is congested, or for sale as railway ties and fence-posts!

Truly, the forestry and conservation idea gains ground !

It would be interesting to consider the different varieties at length, or one might even comment upon the proposed scheme for the establishing of a Canadian forest-products laboratory for test purposes or preservative treatment against decay, or experiments with pulp and paper—but the subject is broad and deep.

If one who has gleaned somewhat of knowledge and much of pleasure during a summer's sojourn in the lumberlands of the Rocky Mountains, may express a wish, it is that this rather desultory article may interest someone for further, deeper study, in the fair field of forestry.

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## CANADIAN NATIVE TREES.

By F. P. Moore, Bruce Co., Ont.

The subject of trees may be dealt with in many different ways, and the amount of license given us makes it a little difficult to know how to treat such a broad subject, so I will limit my observations principally to Canada's native trees which I have seen.

Trees are the longest-lived organisms of the vegetable kingdom, and attain a great and indefinite age, far exceeding that of animals. Trees of which the whole foliage falls off periodically, leaving them bare in winter, are called deciduous; those of which the foliage falls only partially, a fresh crop of leaves being always supplied before the mature leaves are exhausted, are called evergreen. The latter type predominates among Canada's forests.

Forests proper are of great importance in the general economy of the globe. They greatly affect climate; and their beneficial influence in a physical, economical and hygienic aspect is now receiving marked attention.

Every land has trees indigenous to itself, fitted by its climate and soil to thrive there better than anywhere else. To most Canadians, the tree is a familiar object. Probably to some children of the prairies it may yet be an unknown quantity, but the majority of us are so accustomed to seeing it in its many forms, that we do not always appreciate it as it deserves.

Some one has said: "A tree is a nobler object than a prince in coronation robes." To be very practical, so comparatively few of us have seen a prince in his kingly attire that we can scarcely judge the accuracy of the assertion, but most nature-lovers would be willing to give the tree the benefit of the doubt. Whether standing majestically erect—"towering" is the word so often used, and sightly—life and vigor in every limb; or describing the perfect grace of motion, from the gentle movement of its smallest twig, to the tempest-tossed swaying of its mighty branches and bole, surely it is a thing of beauty ! Even in its least attractive garb of winter—speaking now of the deciduous varieties—its delicate tracery against the sky is very pleasing; its spring and summer loveliness casts a spell over even the dullard; while, after it has donned its coronation robes, resplendent in color, and laden with the year's bounty, it, without doubt, is an object of admiration.

In my native county, good old Bruce pine, cedar, hemlock, balsalm, oak, elm, basswood, maple, beech, birch, ash, and tamarack, flourished luxuriantly, and the quality of each for building purposes was unexcelled. Wherever any of these were left for shade, or planted for ornamental purposes, their symmetry and general attractiveness was something to be proud of.

It is pitiable that so much of old Ontario's magnificent timber was destroyed in the early days for the sole purpose of getting it out of the way. Regarding conservation of our forests, no part of our Dominion is more worth while than old Ontario, as a greater variety of valuable trees thrive there than in any other place.

I have been privileged to visit the wooded districts of each of the Provinces, and I was struck by the similarity between the timber of New Ontario and that of the Maritime Provinces. The quality of our familiar types in some cases was disappointing. For instance, the maple was small, unhealthy, ill-thriven, and quite often hollow, and usually bird-eye, due, I understood, to the colder climate. One would rarely ever see oak, beech, rock-elm, or basswood; but pine, cedar, balsalm, birch, and spruce, were there in their element. With the exception of the pulp industry, the lumber trade in the lower Provinces has depleted to a large extent the marketable timber, and the product now depends largely upon the growth of what was formerly the cull stock, while in New Ontario comparatively little of its first-grade material has been marketed

As to the Prairie Provinces, the southern portions have but little timber other than scrub-oak, poplar, balm of Gilead, and Manitoba maple; but the northern parts are timbered similarly to New Ontario, with the exception of an occasional pine and black birch, and the entire absence of maple other than the Manitoba variety. Where used for ornamental purposes, the prairie trees present a somewhat shrivelled appearance, lacking in the vigor and expansiveness of the Western Ontario trees.

But British Columbia apparently tries nobly to bring up Canada's average in forestry, for its growth is phenomenal, the length of many of her trees being double that of those in any of the sister Provinces. The most important varieties are: fir, cedar and pine, and these of a quality far-famed for their strength, durability, and beauty. The extremely fertile valleys, and the long warm season of growth, account for the lushness of the trees. Among the lesser varieties is to be found the arbutus which, in the towns and cities of the coast, is used as an ornament. It is very similar to the Ontario maple, but the leaves are prodigious, some I measured being thirteen inches across. Another ornamental tree of British Columbia is the jack-pine of the dry belts.

While one may be impressed by the gigantic monarchs of the valleys, there are vast quantities of shrivelled and diminutive trees upon what is known as the timber line of the mountains, their less vigorous growth due to their battle for existence with the eternal snows.

The fact that our forests are becoming rapidly depleted by the ravages of fire alone, to say nothing of an annual twenty-million-dollar output through the timber industry, is a cause of alarm to those at all interested in our country's assets. The recent introduction of oil-burning locomotives, on some of the British Columbia railway divisions, should certainly prevent a repetition of the enormous losses by fire of past years.

Would not this change be worthy of adoption throughout all the timbered regions of the other Provinces — as one of the chief devastating elements is the coal-burning locomotive ?

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## PROBLEMS IN TREES.

By "Dundee," Perth Co., Ont.

Habitual and daily contact with anything is destructive of the interest with which it may have been originally invested. Unless the point of view of the first encounters be changed, the mind can afterwards find nothing novel to rouse its waning interest. In this way, habits of mind are built up, which imperceptibly exert their influence over us, and may be very difficult to break. These habits are accentuated by the unappreciative neglect of most great writers, for the problems existing in unassuming commonplaces.

So it comes that the stones by the wayside, the grass, the trees, have for us only a superficial or a pecuniary interest. Wonders must be spectacular—great new machines, uncommon and grotesque animals, terrible storming, thundering cataracts. The common, everyday things, for no other reason than that they are common, are never regarded as world-wonders; yet very often they are no less.

While for the first time looking at the tree in the picture, how many of us saw anything extraordinary about it ? And, to be sure, there are doubtless myriads of trees very like it. Perhaps we thought it rather a symmetrical tree, possessed of considerable beauty of form. Perhaps we guessed at the name of its species, made a vague estimate of its size, and, it may be, thought it a magnificent shade tree for the lawn, or to shelter perspiring animals. But as for calling it a universal wonder — preposterous !

In this age of invention we hear much of the marvels of man's works. Wireless telegraphy, the telephone, the phonograph, the aeroplane, and countless other products of human ingenuity, are indeed wonderful, but comparatively simple in construction. On the other hand, the humblest plant or animal of microscopic size, and composed of but a single cell, presents structural problems which have never been solved. How much more marvellous must be the structure of a tree, which consists of many organs with special adaptations and functions !

The complex structure of a tree is partially accounted for when we consider the millions upon millions of natural selections which it has undergone, until, from out the hazy obscurity of past ages, it has arrived at its present state of perfection. Examination of rock formations tells us that very simple forms of life existed in the early stages of the world's history. Gradually, one or another form became more highly adapted to its environment, and so more successful in the battle for existence. Thus, from the gigantic tree forms of the coal period, arose the more highly organized flowering trees of our forests. The latter finally crowded out their weaker progenitors or forced them to adapt themselves to new conditions. So we see that a tree is not an isolated creation, but the product of perhaps millions of years of improvement. And be it noted that this process of improvement, though slow, is certain, since it is carried on according to natural laws.

It was mentioned above that a tree is as to a single body with many highly specialized organs. Division of labor [illegible] recognized in human so-

(Continued on page 103.)

## Every To-morrow an Opportunity.

The fair, white pages of our New Year lie open before us, and what their record shall be depends very largely upon ourselves. This is a mere truism, one which we surely all know and recognize as a general proposition, but which we too often fail to apply individually.

We are all builders, and not only we ourselves will suffer if our work is defective or left undone, but coming generations may share in the penalty which always follows upon poor workmanship or a weak foundation. In a practical paper on "Jerry-Building," as applied, not only to the houses we live in, but to the characters which we are unconsciously forming for ourselves, the writer says: "We can neither sell nor let on lease our lives; we have to live in structures of our own building, so to speak, therefore it pays best to be thorough, especially in the foundation."

There are three very special departments in our life-work—education, character, and religion—all more or less interpendent upon one another, and Jerry-building in either of these, especially in the case of the children of our country, would end in bitter disappointment to ourselves, and in sad disaster to our best and highest ideals. But,

"Hew by the line, brave workman,
Nor heed complaint, or doubt;
The line was drawn by the Master,
'Tis yours to follow it out.

"Strike by the line and plummet,
Be strong and faithful thy blows;
The shape of the work completed,
The Perfect Builder knows."

And for our comfort and encouragement let us remember that whilst it is for us to work out the details, taking each duty as each day brings it to us, there is a Master Builder who has designed the plan, placed us where we are, and will give us, if we only ask it, all the strength and intelligence needed for our task. Each day, each week, each month, each year, is a new chance given us by God, the unspeakable gift which each day brings us, the gift of Opportunity. Perhaps there never before was an age of such opportunities for service; of doors open for progress; of marvellous developments, as in this year of grace, 1913.

"Wider, and wider yet,
The gates of the nations swing;
Clearer, and clearer still,
The wonderful prophecies ring.
Go forth ye host of the Living God
And conquer the earth for your King."

Be strong, all ye people of the land, and work, for I am with you, saith the Lord of Hosts.—Haggai ii.: 4.

I have entered upon the first pages of my memorandum book for this year, two messages which have come my way, and which seem to me to be appropriate, not only to a New Year, but to every day of every year, so let me pass them on to you. My first is:

### LIFE MEANS LIVING.

"It is a false belief that life necessarily wears itself out as the years go by. Life means living, and so long as we live with our eyes open towards the future, with our ears attuned to catch the melody of the present day, with our hands eager for the new task, with our feet impatient for the unexplored path before us, we shall grow old, but we shall remain young in heart and mind and spirit, which, after all, are our real selves."

My second entry came from an old friend, who mentioned that while visiting in the County of Worcestershire, England, she had seen upon the window of an old, ruined court, in the neighborhood, the motto, "Do, and Dally Not," which had evidently been scratched upon the pane some centuries ago. She enclosed in her letter a little poem in which the incident is recorded with the view to give emphasis to the lesson which it aims to teach us.

Facing, as we are about to do, another year of growing opportunities for service, might not the motto help us to remember that we dare not put off the claims and duties of to-day for a to-morrow which may never be ours ?