

## Jack Pine Suitable for Paper Making

Investigation Demonstrates Feasibility of Many Additional Species of Forest Trees for Pulpwood

The prodigal waste of taking out one kind of wood from a mixed forest and leaving the remainder to be destroyed by fire, wind or decay has brought about a shortage of supplies which compels the use of substitutes for the woods once considered essential. The search for substitutes has, in many instances, revealed the fact that the substitutes are sometimes, not only equally as good, but are better than the original kind. A case in point is found in the manufacture of newsprint. Not many years ago, spruce was considered the only wood that could be used for this purpose. Gradually, and with much opposition, balsam was admitted in mixture with spruce, until now it is accepted in practically unlimited quantities.

We now find the despised jack pine suggested as a substitute for spruce, and the research departments of several of the progressive pulp and paper organizations have established the fact that it is quite feasible to use jack pine in either the sulphite or groundwood processes of pulp manufacture.

At the instance of the Wayagmack Pulp & Paper Co., Ltd., of Three Rivers, Arthur D. Little, Inc., carried on some investigations in their laboratories. They report that the fibres of jack pine are longer than the fibres of spruce, and that the amount of fats, resins and waxes, hitherto assumed to be prejudicial, is not sufficient to preclude its use as sulphite pulp. It appears to require, however, a stronger acid and a longer cooking than other species, and must, therefore, be manufactured separately. In the mechanical or groundwood process, it is claimed that it will make just as good, if not better, pulp than any on the market.

The use of jack pine for this purpose will materially prolong the productive life of the pulp and paper industry in Canada. Though there is as yet very little reliable information on which to base an estimate of the amount of jack pine in eastern Canada, it is thought that it would probably furnish not less than 60,000,000 cords of pulpwood. In the Prairie Provinces, there is perhaps twice the amount, and, in British Columbia, there is over 20,000,000 cords of lodgepole pine, which is closely related to the jack pine of the east. In addition, there are large areas covered with young jack pine and lodgepole pine, which will reach merchantable size in a comparatively short time. Much of this wood, no doubt, will be used for ties and lumber, but there will still remain a very considerable amount for pulp. The utilization of the jack pine as pulpwood will facilitate the exploitation of the spruce and other species in places where there is not sufficient of the

latter alone to warrant logging operations, and it should greatly reduce the waste at present incident to the production of hewn ties.

Jack pine possesses many qualities which recommend it as a continuous forest crop. It is extremely hardy and will grow on the poorest soils, if not too wet, and it is usually sound. It reproduces more prolifically than any other conifer in eastern Canada, as is evidenced by the way it has replaced the original stands of white pine or spruce in many places, following cutting or fire. It grows rapidly and under natural conditions will attain pulpwood size in a shorter time than spruce or balsam.

Many other kinds of wood, including poplar, birch and hemlock, can be used in the pulp and paper industry, and it is hoped that further research will result in their more general utilization for this purpose.—R. D. Craig.

## Money to be Made Collecting Waste

Many Organizations are Financing Themselves through Sale of Waste Paper, etc.

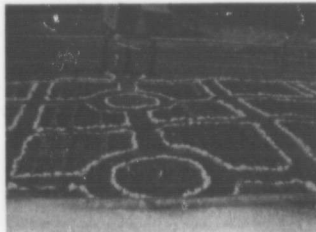
The movement for the saving of waste paper is growing, and many organizations report activity in raising funds by these means. Vancouver schools are buying equipment for field sports; First Avenue School, Ottawa, required a gramophone and paid for it by collecting and selling waste paper; a Conservation of Waste Committee of Sarnia, Ont., by means of the collection and sale of wastes, raised funds during the war and is now engaged in establishing a collection of paintings by Canadian artists; Daughters of the Empire, Young Women's Christian Associations, Boy Scouts, etc., are all interested

in the collection of waste. The cumulative results of this campaign will, no doubt, lead to a larger appreciation of the value of material which we have been wasting.

The educational effect of these campaigns is one of their valuable features; for instance, the scholars in the Ottawa school will not forget that, from four or five days' of collecting waste paper, they raised \$169 for their gramophone, and will appreciate the value of waste paper; similarly, the membership of the various organizations recognize that from such sources much revenue may be secured, with little effort. The widespread dissemination of this knowledge should lead to a reversal of the charge that Canadians are a wasteful people in so far as paper is concerned.



Gillis Bay, B.C., school and grounds, in 1918, when the present teacher took charge. Anything but an inviting condition.



Gillis Bay School Garden, 40 x 60 feet. Cleared, fenced and planted by the teacher and his pupils. A demonstration of what initiative and energy can accomplish in beautifying school grounds.

Photos courtesy British Columbia Dept. of Education.

## School Gardening and Conservation

The history of Canada is largely one of creating gardens in the wilderness. Unlike England, where the effort is to maintain and improve the heritage of the past, in Canada we are laying the foundations on which future generations must build. The pioneer is still a big factor in our national life and, even in old settled districts, much spadework remains to be done before our rural landscape will wear the finished appearance of the English countryside.

Improvement in the surroundings of rural schools is one direction in which there is a big field for endeavour. "Where there's a will there's a way" and what can be accomplished even in the face of very discouraging natural difficulties, may be seen from a comparison of the two illustrations published herewith. The contrast speaks for itself and one can easily imagine how beautiful the grounds of this particular school will be in a few years if the excellent beginning thus made is turned to good account.

Educationists emphasize the fact that the chief object of school gardening is to broaden the children's minds, the growing of a few flowers and vegetables being only of secondary importance. The

layman is likely to be most impressed with visible results. From either point of view, the establishment of school gardens is a work of conservation, for it leads directly to higher development of the nation's greatest natural resource, the soil, and of its greatest human resource, the rising generation of girls and boys.

## Crops Depend Upon Sufficient Moisture

Controlling Factor in Crop Production in Dry Areas of Western Canada

At the conference on Soil Fertility and Soil Fibre held at Winnipeg, under the auspices of the Commission of Conservation, the fact was emphasized that moisture is undoubtedly the limiting factor in crop production in western Canada.

Prof. John Bracken, President of Manitoba Agricultural College, in speaking at the conference, said: "So long as moisture limits the yield of the crop nothing else will increase it. A chain is as strong as its weakest link. There are links in the problem of crop production. One of those links is moisture; another, organic matter; another, plant food. The

weakest link is moisture, and it will not strengthen that chain any if we strengthen some other link. We have to strengthen the weak ones first, and as we strengthen the weak ones, we strengthen the whole.

"The wealth of a dry country is determined not by the amount of land, not even by the amount of water that falls on the land, nor by the amount of water that falls on the land and is stored there and used by growing crops. As a matter of fact the water that is used in producing straw, under the present system of farming, is largely wasted. We must build up a system that will utilize that by-product, which at the present time is using over one-half of the moisture that we store and conserve in the soil.

"Another fact is this, that the precipitation varies very largely from year to year and from season to season, and because of that we shall have to diversify our cropping system. It has been pointed out and should be emphasized, that Western Canada is, first and foremost, a cereal-producing country; occasionally the precipitation comes in the early part of the season, with the result that cereal partly or wholly fail. By diversifying our cropping system we can reduce this risk."