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CONTENTS.

	Page.
French Report	97
Tree Distribution	98
Royal Scottish Arboricultural Society Jubilee	99
Ontario Forests: Annual Report	101
Forest Insect Investigation in British Columbia	102
Prominent Members Pass Away	103
Quebec Timber Sales	103
Birds and Forest Protection	104
House of the Trees (Poem)	107
Reindeer Herd in N. W. T.	108
Algonquin Park	108
With the Forest Engineers	109
Forest Products Laboratory	110
Pit Props for Great Britain	111

C. F. A. REPORT IN FRENCH.

After many delays the report in French of the work of the Canadian Forestry Association covering the Ottawa, Victoria and Winnipeg Conventions has been printed and mailed to a long list of members and others. It has been sent to the bishops and curés of Quebec, to heads of educational institutions, and to the secretaries of school districts. The latter are in most cases municipal secretaries also. The effort has been to take the best things, the things most useful to the Province of Quebec especially, out of these three conventions and place them in one volume. The result is a book of one hundred pages, which it is believed will be very useful.

Those of our members who desire a copy and have not yet received one will be supplied without charge by applying to the Secretary, Canadian Forestry Association, Ottawa. Copies will also be available for general distribution so long as the supply lasts.

U. S. LUMBER PRODUCTION IN 1913.

The United States Forest Service reports that the production of lumber in the United States in 1913 was 38,387,009,000 board feet, which represents a decrease of about three-quarters of a billion feet from the total reached in 1912. The high water mark of lumber production was attained in 1909 when the cut exceeded forty-four billion feet. In 1913 there was an increase as compared with the previous year in the cut of Douglas fir and yellow pine, and a decrease in white pine, hemlock, spruce, oak and maple. This change in the quantities of certain woods indicates increased production in Washington and Oregon and the Southern States and decreased production in the Northern, Central and Atlantic States. Of the total production in 1913 soft woods contributed a little over thirty billion feet.

FOLLOWING CANADA'S LEAD.

The good work done by the Dominion Forestry Branch in the past twelve or thirteen years in distributing trees to settlers in the prairies for windbreaks, and ultimately for fuel and timber, is to be followed by the United States Forest Service. Mr. W. A. Peterson, Superintendent of the newly established Field Station at Mandan, North Dakota, U.S.A., recently visited the Dominion Forestry Branch Nursery at Indian Head in order to get information as to the methods employed in handling the trees to settlers in Canada. It has been decided that the United States Forest Service will in the future distribute trees to prairie settlers from Mandan in the same manner as the Dominion Forestry Branch has been distributing them from Indian Head. The province of Ontario has for a number of years been distributing trees to farmers from Guelph and latterly from the nursery station at St. Williams. In both the above cases

the trees (except special kinds for which a small charge is made) are distributed free, the recipient paying the express and undertaking to give cultivation for a period of three years. The province of Quebec during the past two years has distributed trees at a very low price from the provincial forest nursery at Berthierville. It is interesting to know that Canada has been leading in this matter, but some of the other provinces, notably the Maritime provinces, might well assist in the work of farm forestry by similar methods.

CANADIAN PACIFIC RAILWAY ACTS.

In order to relieve the unemployment caused by the war, the Canadian Pacific Railway management, at the end of September, decided to take on six thousand extra labourers for two months, to do work along its lines. It is understood that a good deal of this work will consist in clearing debris from the right of way to reduce the risk of fire spreading from the locomotives. This is a satisfactory action from whatever standpoint it is viewed, and the only regret is that the other railways do not see their way clear to do likewise.

UTILIZING MAIL CARRIERS.

The United States Post Office Department, in its postal guide, instructs rural mail carriers to report forest fires which they observe when on their routes to the proper authorities. The railways in Canada, the Bell Telephone Company, and other companies have inserted instructions regarding forest fires in their time tables and directories, and this idea of having rural mail carriers linked up with the protecting agencies is one worthy of the consideration of the Canadian Post Office Department.

Royal Scottish Arboricultural Society Jubilee

The accompanying picture represents the group of distinguished visitors who were the guests of the Royal Scottish Arboricultural Society on the occasion of the celebration of the sixtieth anniversary of the founding of the society. The picture was taken at Benmore, where the party were inspecting some forest work. In addition to distinguished foresters from different parts of the British Isles and British Dominions, there were representatives from France, Denmark, Holland, Sweden and Russia. Mr. R. H. Campbell, Dominion

Director of Forestry, who represented Canada, was the only visitor from North America. Mr. Campbell may be recognized as the sixth from the left in the second row.

In its sixty years of work, this, the oldest forestry propagandist organization in the British Isles, has learned many things which are of use to Canadians in their work. It is curious to note that with the exception of the question of ownership (nearly all the forests of Scotland being privately owned) the problems presented



Excursion Party of R. S. A. S. at Benmore, Scotland.

are much the same as in Canada. There is the same apathy of the general public, the same difficulty in getting large bodies to move, and there is the education difficulty. The Royal Scottish Arboricultural Society meets the situation in much the same way as the Canadian Forestry Association. It carries on its work by meetings and by literature. It holds its annual meeting in the winter and in summer it holds a summer meeting in the nature of an excursion. Some years ago a departure was made in extending these excursions, not only to England and Ireland, but also to continental Europe. This has been a most important and successful plan. Members who go to France, or Germany, or Sweden, come back with an increased store of knowledge and enthusiasm. These excursions abroad are taken on alternate sum-

mers, the intervening year the excursion being held in Scotland. So beneficial has this plan of alternate home and foreign excursions proved that the society has taken on new life from the time of its introduction. One of the special aims of this year's excursion was to have foresters from abroad see the forests of Scotland and suggest methods by which the situation might be improved.

This year the leading members of the society and the special guests began their tour on June 27, and, after visiting estates on the west and east coasts, met the main body of the society at Oban. Three days more were spent in visiting forests in the neighbourhood in which about two hundred participated, and the excursions were concluded at Benmore, where the above photograph was taken.

Because of the stirring up by the society a good deal of information has been gathered. It is considered, on a careful estimate, that there are about nine million acres in Scotland which might profitably be retained in forest. Some of this is now in forest, but the greater part is in the so-called 'deer forests,' which are really not forests at all, and in grazing lands. In some cases a number of crofters till small patches of land in the valleys, and graze sheep and cattle on the uplands. It is not proposed to turn everything upside down at once, but a careful review has shown that part of the poorest of the land used for grazing might be put into forest, with the result that not only would the districts sustain a considerably larger population, but the people would be better off, as they would have winter work in the woods.

To accomplish, the society has chiefly to convince individual owners. Some owners are convinced, but lack the necessary capital to turn their grazing lands, which bring them in an annual return, into forests, which, in the beginning, will not turn them in cash for a good many years, even though eventually the profits will be greater.

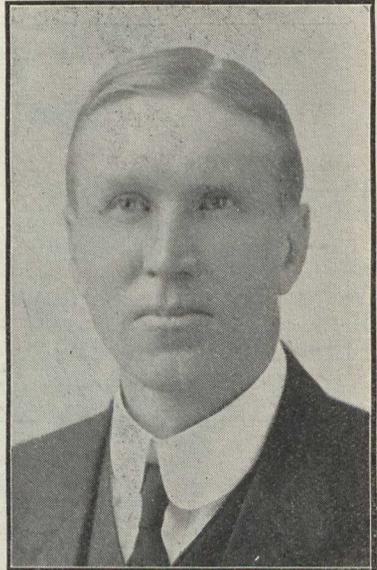
In regard to the part the Government is playing in this question, this has been so far chiefly confined to demonstration forests, and the aim of the society has been to secure more and better demonstration stations. So far all the examples are of forest plantations, none of them more than a comparatively few years old. They desire the Government to secure some lands already forested, so that experiments in cutting, thinning and rotation may be made at once for the benefit of private owners.

One thing that they have learned in Scotland is that the rapidity of growth of different trees varies greatly in different districts, even though separated by a comparatively short distance. In the Highlands and on the east coast the Scotch pine thrives well, but in the very damp districts of the west coast, where the rainfall runs from 90 to 120 inches per year, its growth is much surpassed by the Douglas fir imported from British Columbia. And again, where the position is both wet and exposed to high winds, the latter cedes first place to the Sitka spruce, also an importation from the Pacific coast.

We are accustomed to think of Great Britain as an old country of small area, all of which has been so carefully surveyed and examined that all resources are fully known and are in process of full development. This is a mistake. There is a body, known as the Development Commission, charged with the duty of examining into any features of agriculture, forestry, mining, fishing and the rest that may promise

increased wealth for the country, and to make recommendations in regard to their development. It is this body which, in the first instance, provides the funds to purchase demonstration forests, and these forests are then placed under the direction of the Woods and Forests Branch of the Government.

In regard to forestry education, Scotland, like North America, is now suffering from too many schools. One good school would supply all the foresters required for Scotland if all the available land were now covered with forests, but at the present there are three schools, no one of which is willing to make way for the others.



MR. R. H. CAMPBELL,

**Dominion Director of Forestry, Made an
Honorary Member R. S. A. S.**

These are some of the problems before the people of Scotland, problems which the Royal Scottish Arboricultural Society is helping to solve. The society has gone at its task with enthusiasm and perseverance, and there are a number of features of its work, notably that of the annual excursion to forest districts, which the Canadian Forestry Association may study to advantage.

To be consistent, the man who sits back and expects that nature will replace the burned forest might also expect the supply men and the mechanics to replace, free of cost, that which they had supplied or produced, and which, through carelessness, had been destroyed by fire.

Ontario Forests: Revenue and Protection

Extracts from the Report of the Minister of Lands, Forests and Mines for Ontario for the year ended Oct. 31, 1913:

Revenues.

Total revenue accrued from woods and forests for the year: \$2,127,222, an increase of \$59,162.

Revenue collected: \$1,979,125, a decrease of \$6,000 from previous year, which was a record exceeding that of the next preceding year by \$274,000.

Revenue from timber dues: \$1,277,490; decrease \$62,467.

Bonuses: \$591,676; increases \$50,974.

Ground rent: \$99,460; increase \$3,198.

Area and Output.

Area under license: 17,519 sq. miles; decrease 891 sq. miles. This fluctuates as areas are cut out and surrendered, others forfeited for non-payment of dues, etc.

Output of pine timber: 360,377,168 feet board measure; decrease 127,661,498 feet.

Output of timber other than pine: 64,498,036 feet b.m.; decrease 4,876,536 feet.

Pulpwood: 131,434 cords; decrease 8,904 cords.

Railway ties: 6,355,828 pieces; increase 651,269 pieces.

Cause of reduction: scarcity of money.

Fire Ranging.

Fire rangers on forest reserves, 217; on railways, 208; on Crown lands, 114; chief rangers, 34; assistant chief rangers, 4; supervising rangers on licensed lands, 8; total Ontario Government officers and rangers, 585; rangers employed by lumbermen on their limits, 350; grand total, 935 fire fighters.

Forest Reserve Ranging.

Temagami reserve: area, 6,000 sq. miles; 137 rangers, and 4 chiefs.

Mississaga reserve: 3,000 sq. miles; 32 rangers, and a chief ranger.

Nepigon reserve: 7,300 sq. miles; 20 rangers, in addition to those on railway construction in the reserve.

Quebec reserve: 1,500 sq. miles; 14 rangers under the Crown Timber Agent.

Eastern reserve in the county of Addington, 100 sq. miles: 6 rangers and a chief ranger.

Algonquin National Park: 2,741 sq. miles; 10 rangers in addition to the regular park rangers.

Railway Lines Ranging.

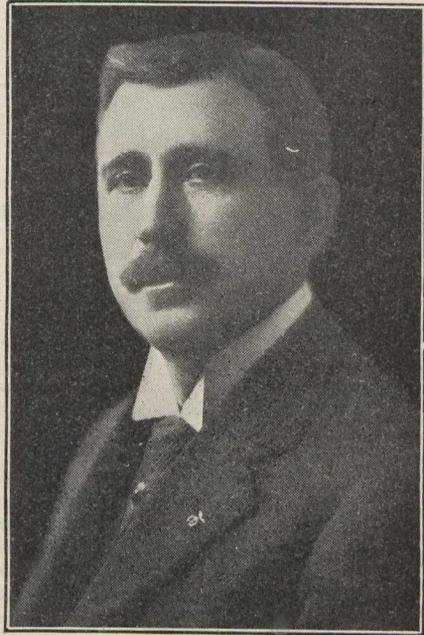
Temiskaming and Northern Ontario Railway: 58 rangers, 3 superintendents.

National Transcontinental Railway: 68 rangers, 3 chiefs.

Algoma Central Railway: 26 rangers, 2 chiefs.

Expenditure on Fire Ranging.

On Crown lands \$65,000, on railways \$80,000; on forest reserves \$88,000, total \$233,000. This is in addition to the amount spent by the lumbermen which outsiders (not the report) estimate at \$105,000. Grand total spent on forest fire protection in Ontario, \$338,000.



HON. W. H. HEARST,

Premier of Ontario.

Hon. W. H. Hearst, Minister of Lands, Forests and Mines in the Government of Ontario, who, since the death of Sir James Whitney, has been made Prime Minister of Ontario.

Forest Insect Investigation in British Columbia

In response to a request for information in regard to the work during the past summer in British Columbia Dr. C. Gordon Hewitt, Dominion Entomologist, sends the following:—

‘The forest insect survey in British Columbia which was undertaken last year in co-operation with the Provincial Forest Branch, has been continued during the past summer. Mr. J. M. Swaine, in charge of Forest Insect Investigations, spent June and July in continuing this work, and Mr. R. N. Chrystal, Field Officer for Forest Insects, has been stationed in British Columbia throughout the season. Our knowledge of the districts infested and the extent of the more serious outbreaks has been greatly extended and valuable additional information has been obtained in regard to the habits of some of the destructive species involved. We have also been making detailed studies of the injurious insects which have brought about the present unfortunate conditions in Stanley Park, Vancouver.

‘It is found that the amount of dead hemlock in Stanley Park is now much greater than in September of last year, many trees having died during the fall and winter. The spruce trees along the drive-ways are now so badly injured by the Spruce Gall Aphid that few of them are worth saving. Fortunately the greater part of this foliage is hemlock and Douglas fir and is still (August 1st) in fair condition. The large spruce in the interior of the Park are now attacked by the Sitka Spruce Bark-beetle. This infestation is serious and control measures will be necessary this winter if the remaining large spruces are to be saved.

‘The dead timber in the interior of the Park is chiefly hemlock and of this there are large areas. The trees have been killed by repeated defoliation by *Therina* caterpillars, assisted by woolly aphides during the early season. The caterpillars are not so numerous this season and there is as yet little defoliation. It is possible that their parasites have already obtained control and that the worst of the outbreak is now over. If this proves to be true the spraying which has been recommended will not be so necessary for the present. The dying and recently killed trees are serving as breeding places for injurious insects and fungi that will later help to weaken and kill the healthy trees. The Western Hemlock Bark-beetle, a destructive species, is already established in these dying trees. It will, therefore, be necessary to remove and properly dispose

of this dying and dead hemlock during the coming fall and winter; and if the areas thus denuded are reforested to Douglas fir, the most healthy timber tree of the province, such portions of the Park will be put in perfect condition for all time. It should be made a settled policy to replace the hemlock as it gradually dies, by the much more healthy Douglas fir.

‘The Bark-beetle infestation in yellow pine in the Okanagan district is more extensive than at this time last year and appears to be spreading rapidly. The amount of new infestation for the present season will be estimated later. The infested area surrounds Okanagan Lake and extends as far west as Princeton and Nicola. In the districts which have been infested longest the destruction is enormous. Above Peachland, on Okanagan Lake, the yellow pine and the black pine have been practically killed off by the beetles, and the hillsides appear as though swept by a great fire, only the islands and strips of Douglas fir remaining green. This infestation of the yellow pine and the black or ‘jack’ pine is a very serious matter and timber owners in the infested region and about its extending margin should take due precautions to check its spread. Fortunately, such outbreaks can be controlled, if taken in time, and under favourable conditions in districts which can be lumbered profitably the control measures do not involve much expense.

‘The infestation of Western white pine by the Western White Pine Bark-beetle is reported from additional localities this season. If present conditions continue the white pine in many parts of British Columbia will soon be entirely killed off. The owners of any valuable stands of Western white pine should be on their guard against this most destructive enemy.

‘The great loss already caused by the Bark-beetle outbreaks and the apparent certainty of still greater destruction, demand vigorous control measures in many districts. The proper disposal of pine slash is a very important factor, for the beetles frequently breed to immense numbers in such abundant supplies of breeding material and spread thence into the green timber. It should be a settled policy in British Columbia to *burn all pine slash each season between October and May*, as an aid to Bark-beetle control. The activity of other species of Bark-beetles in Spruce and Douglas fir will apparently soon render the burning of spruce and fir slash equally necessary.

'The habits of these destructive Bark-beetles and the proper measures to be taken for control of this outbreak are dealt with in a bulletin shortly to be issued by the Entomological Branch of the Department of Agriculture.

'The areas of diseased larch along the Arrow lakes, and in other parts of the Kootenays, are much less numerous and smaller in extent this season than for the last two years. Material from the affected trees was referred to Mr. H. T. Güssow, the Dominion Botanist, who reports the disease as a leaf-destroying fungus, *Lophoderminm laricinum*. The majority of the trees attacked last season have recovered; but it is probable that if severe outbreaks should occur on the same areas for several years in succession, much timber would be killed, and opportunity offered for the destructive Bark-beetles to obtain a foothold in the large number of weakened trees.'

PROMINENT MEMBERS PASS AWAY.

Death has taken heavy toll of our membership during the past summer and autumn, and in some cases death came in tragic form. This was so in the case of Mr. H. H. Lyman, head of the great drug house of Lymans Limited, Montreal, who, with Mrs. Lyman, perished in the Empress of Ireland disaster. Mr. Lyman left a number of charitable bequests. Among these were: To McGill University, Lyman's Entomological Library and cases and \$20,000; to aid in the establishment of a Montreal Public Library, \$125,000; to the Children's Memorial Hospital, \$25,000, etc., etc.

Mr. M. M. Boyd, of Bobcaygeon, Ont., died in Philadelphia, where he had gone for medical aid on June 8, in his fifty-ninth year, and was buried in the family plot in Peterboro, Ont. Mr. Boyd, along with his brother, Mr. W. T. C. Boyd, early assumed charge of the business founded by his father, the late Mossom Boyd, and in this way became acquainted with all the details of lumbering. As a practical lumberman, he always deprecated any Government policy, which, for the sake of immediate revenue, would cause a too rapid depletion of the forests. Mr. Boyd did not confine his energies to the lumber business, but took a keen interest in stock breeding, especially in the development of Polled Hereford cattle, which was carried on at the firm's ranch near Prince Albert, Saskatchewan. In fact, he was greatly interested in all that pertained to agriculture, and since his death the resolutions of sympathy passed by the different agricultural organizations show the esteem in which he was held and the value of his work.

Lieut.-Col. Jeffrey H. Burland, of Montreal, who had gone to England as head of the Canadian Red Cross organization at the front, was stricken with a fatal attack of angina pectoris on the night of Oct. 8, after being until a few hours before in his usual good health. Col. Burland, who was born in Montreal in 1861, was a member of a leading family of that city, and was prominent in many business enterprises. He was president of the British America Bank Note Company, of the Prudential Trust Company, etc. He was a generous patron of practically every hospital and charitable institution in Montreal, and, among many other benefactions, founded the King Edward Tuberculosis Institute of Montreal. He had commanded the Sixth Fusiliers of Montreal, was a member of the small arms committee under the Canadian Government, and President of the Dominion Rifle Association. He was one of the originators of the movement for sending a Canadian battalion to England on the occasion of Queen Victoria's diamond jubilee in 1897, and was present by invitation at the coronation of King Edward VII. and King George. Col. Burland was strongly impressed with the necessity of preserving our natural resources, and was among the earliest members of the Canadian Forestry Association. His energy and his strong personality, in addition to his wide business and social connections, made his influence felt throughout Canada, and that influence was always exerted for the benefit of his country.

TELEGRAPH POLES ALSO.

The Secretary of the High Commissioner's office in London recently interviewed the British Post Office Department in regard to purchasing telegraph poles in Canada. He was informed that whereas competition with Russia and Norway for smaller poles would probably be too keen for Canada to meet, the Department would consider the question of placing trial orders for larger size poles in Canada.

U. S. and N. Y. Timber.

In the United States as a whole four-fifths of the standing timber is privately owned, and one-fifth is owned by various states and the Federal Government. New York owns one-fifth of the forest land of the state, and one-fourth of the standing timber. Owing to a clause in the Constitution, this timber can not be cut, even though it is dying, or dead, and a menace to healthy timber about it. The state should allow careful cutting of mature timber in the Adirondacks.—*N. Y. Forest College Bulletin.*

Birds and Forest Protection

Dr. C. Gordon Hewitt, Dominion Entomologist, Ottawa, whose work in regard to injurious forest insects is well known to all members of the Canadian Forestry Association, has always endeavored to impress upon all citizens, and particularly upon the young, through the Boy Scouts and other organizations, the value of our birds as destroyers of injurious insects and of weed seeds. In a recent address, Dr. Hewitt went into this subject in detail, and from that lecture, as it appeared in the *Ottawa Naturalist*, the following parts relating more particularly to the forest side have been taken:—

‘The motives behind the widespread and increasing movement respecting the protection of our native birds may be included in two classes, namely, sentimental and practical. Most people, even in this material age, are sensible of feelings of affection towards our birds, and are delighted when the return of the first spring migrants announces the termination of our long birdless winter. But the practical considerations underlying the movement are not so generally appreciated, and for that reason æsthetic feelings will be assumed and the practical motives discussed.

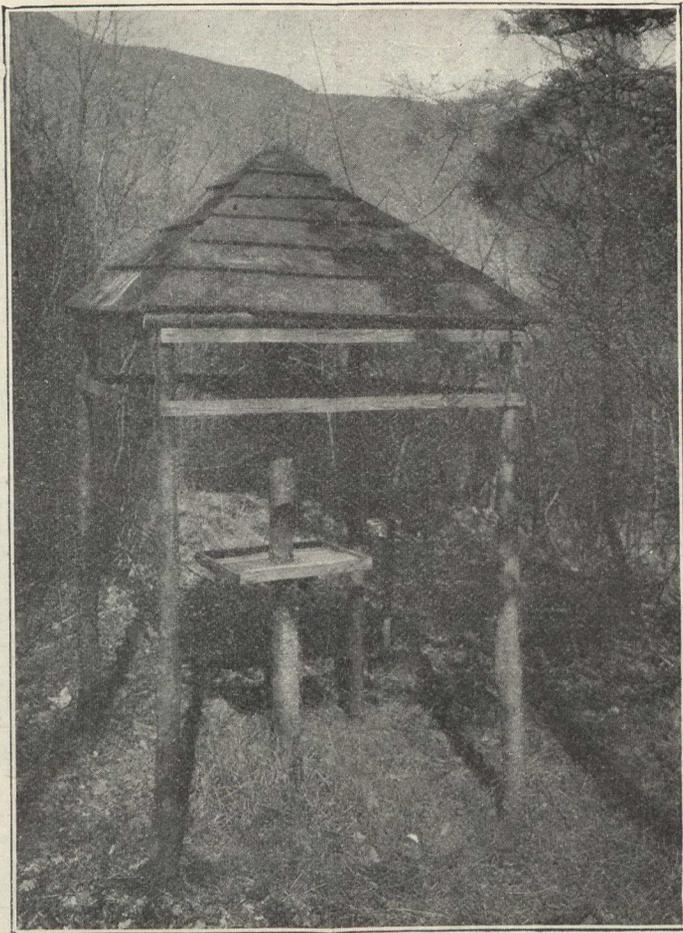
‘Few people realize the place of insect pests in the general economy of life, but when it is understood that were it not for their controlling factors insects would, in a few years, destroy every form of vegetation, and consequently all animal life on the face of the globe, the significance of such controlling factors will be appreciated. In the United States it is estimated, on a conservative basis, that the annual loss on agricultural and forest products is about eight hundred million dollars (\$800,000,000). I have estimated that in Canada, on our field crops alone, the minimum annual loss due to injurious insects cannot be less than fifty million dollars; this does not take into account the enormous aggregate cost of controlling insect pests. And yet the most valuable insecticidal agencies we have are not only not encouraged, but, in many cases, ruthlessly destroyed. Such a short-sighted and wasteful policy cannot and must not be continued.

‘The quantity of insect food consumed by birds is almost incomprehensible, but the facts set forth by various investigators on this continent and in Europe give us some idea of the extent to which insects go to make up the diets of birds. Insects constitute 65 per cent. of the total yearly food of woodpeckers, 96 per cent. of that of fly-catchers, and 95 per cent. of the yearly food of wrens. Upwards of 5,000 insects have been found in a single bird’s stomach. The value of the birds is increased by the fact that at the time when insects are most abundant birds are most active and require most food, especially animal food, to feed their young.

‘A young crow will eat twice its weight in food; a robin weighing three ounces was found by Nash to consume five and one-half ounces of cutworms in a day. It is calculated that a pair of tits and the young they rear will consume about 170 pounds of insect food during a year. These facts and others to be given later will indicate the enormous destruction of insect life that is accomplished by the presence of birds. They constitute one of the fortunate balances of nature. But man is constantly upsetting the balance. Woodlands are cut down and give place to open fields; snake fences give way to wire; subdivisions and town lots obliterate the waste places and often the swamps. All these circumstances tend to drive away the birds formerly resident and breeding in such localities. Then outbreaks of injurious insects occur and their depredations are increased and prolonged by reason of the absence of such important enemies. Therefore, our aim should be to restore the balance by attracting the birds back to our parks and natural reservations.

‘Not only do birds destroy insect pests, but they contribute to the destruction of weeds. Certain species of our native sparrows are large consumers of such weed seeds as bindweed, lamb’s quarters, ragweed, amaranth, pigeon grass, etc.

‘The feeding habits of a few of our common species of birds which should be protected may now be considered. The Robin (*Planesticus migratorius*) probably comes first. Early in the year it feeds extensively on cutworms, those insidious enemies of our garden plants and crops; in March they constitute over a third of the robin’s food. It is accused of fruit eating, and yet of all the vegetable matter it consumes a large proportion consists



House for Winter Bird Feeding at Thirlmere, England.

of wild fruits; 330 stomachs contained 58 per cent. vegetable matter, of which 47 per cent. consisted of wild fruits and 4 per cent. cultivated fruits. The Bluebird (*Sialia sialis*) is not so common as formerly in the Ottawa district, having probably been driven away by the encroachments of man. Charming in its habits, it responds readily to encouragement, building in hollow trunks and cavities. Insects such as grasshoppers, beetles and caterpillars constitute about 68 per cent. of its food.

With the possible exception of the house wren, probably no other birds so readily take advantage of artificial nesting places as the Chickadees (*Parus atricapillus* and others) and Tits. Their unremitting search for insects on every branch, twig and leaf is a fascinating sight, and the good they accomplish is difficult to conceive. A Blue Tit will destroy six and a half million insects in a

year, and in bringing up a family of about twelve to sixteen young ones, about twenty-four million insects would ultimately be accounted for. Especially valuable are they in the destruction of the eggs of certain species of defoliating caterpillars, such as the canker worms and tent caterpillars, the moths of which deposit their eggs on twigs. The pupae of the codling moth and the hibernating forms of plant lice do not escape the sharp eye of these small acrobats. The little White-breasted Nuthatch (*Sitta carolinensis*) which may be seen running not only upwards, but also downwards, on the trunks of trees, has somewhat similar habits to the Chickadees. Over 50 per cent. of its food consists of insects. The House Wren (*Troglodytes aedon*) has suffered much by the inroads of the quarrelsome English sparrow, which drives it out of its nesting places on every possible occasion. Nevertheless, this confiding little bird, which charms us so

much with its little bubbling song, and exacts such a heavy toll on insect life, will gladly accept a nesting box out of which the sparrows may be kept by hanging it rather low down, and having the entrance hole as small as possible.

'The Purple Martin (*Progne subis*) formerly nested in hollow trees, but the advent of man encouraged it to nest about his domicile. In some parts of the country, I have noticed the fact, particularly in certain sections of New Brunswick, one may see martin houses erected on poles, and this form of encouragement is very successful, although the English sparrows are a constant source of trouble to the rightful owners. The value of the martins and swallows around the house and buildings as insect destroyers is appreciated by all who have encouraged them. The Tree Swallow (*Iridoprocne bicolor*), which nests in hollow trees, is not so abundant in certain sections of Ontario as formerly. Reporting the success of nesting boxes during 1913, Mr. W. E. Saunders, of London, Ont., writes: "Another lot of boxes which were put in place on an island in the Rideau Lakes were a source of actual competition among the tree swallows, there being more pairs than there were nests."

'Two of the woodpeckers may be attracted by the use of nesting boxes. The Flicker (*Colaptes auratus*), which occurs in and around Ottawa, feeds largely on ants; a single stomach has been found to contain over 5,000 ants. In another instance 28 white grubs, one of our worst pests of grass land and certain crops, were found in the stomach of a flicker, which feeds largely on the ground. It also feeds upon wild fruits, such as the wild black cherry. The Downy Woodpecker (*Dryobates pubescens*) is a most valuable ally, as it feeds largely on beetles that destroy trees by boring into the bark and timber. An examination of 723 stomachs showed that 76 per cent. of the diet was animal food, consisting chiefly of insects.

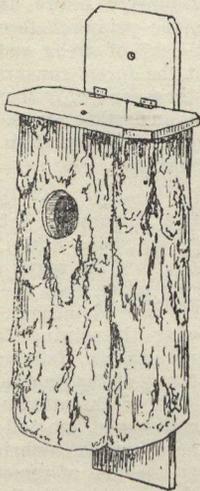
'Reference has already been made to the weed-destroying habits of our native sparrows. One of the first birds to arrive in the spring, breaking the long winter silence with its welcome little song, is the Song Sparrow (*Melospiza melodia*), which is very domestic in its habits. About three-fourths of its food consist of weed seeds and one-fourth of insects. Beetles, especially weevils, form the greater portion of the insect food. A thick hedge, dense shrubs, or piles of logs provide suitable nesting places for this most welcome of our sparrows. The Chipping Sparrow (*Spizella passerina*), whose confiding ways give it a warm place in our affection, has somewhat similar nesting habits to the former. It is, moreover, the most insectivorous of our sparrows. About 42 per cent. of its food consists of insects and spiders, and caterpillars make

up the major portion of the insect food, especially when the young are being reared, when as many as 17 feedings per hour, on an average, for a brood of four nestlings have been recorded. The retiring and sombre Junco or Snowbird (*Junco hyemalis*), destroys insects and feeds on weed seeds. An examination of 500 stomachs gave 23 per cent. animal food (caterpillars, bugs and beetles), and 77 per cent. vegetable food, of which over 61 per cent. consisted of weed seeds. In September the proportion of weed seeds may rise as high as 95 per cent. of the food.

'The greatest exponent of the practice of bird protection is undoubtedly Baron von Berlepsch, and to him we are indebted for the splendid example he has given at Seebach, in Germany. His ideas have been adopted by various states in Germany and in the countries where the protection of birds and the provision of nesting boxes constitute an important and necessary adjunct of forestry methods. An instance, given by Baron von Berlepsch, of the practical value of bird encouragement may be quoted. The Hainich wood, south of Eisenach, which covers several square miles, was stripped entirely bare in the spring of 1905 by the caterpillars of the Oak Leaf-roller Moth (*Tortrix viridiana*). The wood of Baron von Berlepsch, in which there had long been nesting boxes, of which there are now more than 2,000, was untouched. It actually stood out among the remaining woods like a green oasis. At a distance of a little more than a quarter of a mile further, the first traces of the plague were apparent, and at the same distance farther on still it was in full force. It was plain proof of the distance the tits and their companions had gone during the winter and after their breeding time. Similar observations were made during a plague of the same insect in the Grand Duchy of Hesse, where the protection of birds has been carried on in a sensible and energetic fashion for over ten years. Of 9,300 boxes hung up by the government in the State and Communal woods of the Grand Duchy of Hesse, 70 to 80 per cent. were occupied in the first year, and in 1907 all were inhabited. On and near Baron von Berlepsch's Seebach estate, 90 per cent. of 2,000 nest boxes in one wood were occupied, and nearly all of 500 and 2,100 in other localities. In Hungary similar measures are taken, largely owing to the admirable work of Otto Hermann, one of the foremost European advocates of bird protection.

'Some years ago, when investigating the depredations of the Larch Sawfly (*Nematus erichsonii*), in the English Lake district, I was impressed with the value of birds as natural means of control, and as birds in the worst infested district, namely, Thirlmere, were not so abundant as they should have been, it was recommended that they

should be protected and encouraged by means of nesting boxes. The corporation of the city of Manchester owns Thirlmere, this lake being their water supply, and they distributed nesting boxes of the pattern which I devised, and which is illustrated herewith. The advantage of this box was that it could be made out of the slabs or rejected outer portions of the lumber bearing the bark. Three equal lengths of the slab are nailed together to form three sides of a long box, the outside of which, bearing the bark, was round and the inside square. The fourth side is made of a flat piece of wood, forming the back of the box; this piece is longer than the other sides, and projects above and below the box, thus providing means of attaching the box to the tree. The top and bottom of the box may be made of slab wood. Several holes should be bored in the bottom, which is nailed on, to keep the nest dry. The top is hinged to the back board, and when in use is fastened down by means of a screw, which permits the lid to be opened for the purpose of cleaning out the old nests. By so utilizing waste lumber, these boxes were made very cheaply at the sawmill. In the first year (1908) 60 boxes were distributed and 31 per cent. were occupied. The number of boxes was increased yearly, until, in 1911, there were 347 boxes, of which 66 per cent. were occupied. I am informed that in 1913 75 per cent. of the boxes were occupied.



Nesting Box.

In addition to the provision of nesting places for those birds nesting in cavities and hollow places, the protection of birds involves the carrying out of other measures also. For birds nesting on or near the ground piles of logs or brushwood may be left in sheltered places, and thickets of closely growing shrubs and vines permitted to remain here and there. Piled logs will

also provide shelter for many birds during inclement weather. While most of our birds leave us during the winter, except in certain places, where the chickadees may be found, there are certain occasions where feeding may be adopted with advantage. Not infrequently after the arrival of certain of our early migrants in the spring a cold spell and snow occurs. On such occasions feeding can be resorted to with great advantage. The fact that birds require water is not so generally realized as one would wish. Especially is this the case during our hot summer months. One of the most attractive additions which can be made to a garden is a bird's drinking trough, or fountain. This should be shallow enough to permit the birds to take a bath. The best type of artificial bird water supply for a garden is a shallow pool, two or three feet in diameter, and a few inches deep, in which a few reeds and water plants are planted. If this is placed in a wooded corner of the garden or shrubbery it will be constantly visited by all kinds of small birds.

THE HOUSE OF THE TREES.

Ope your doors and take me in,
Spirit of the wood,
Wash me clean of dust and din,
Clothe me in your mood.

Take me from the noisy light
To the sunless peace,
Where at midday standeth Night
Signing Toil's release.

All your dusky twilight stores
To my senses give;
Take me in and lock the doors,
Show me how to live.

Lift your leafy roof for me,
Part your yielding walls;
Let me wander lingeringly
Through your scented halls.

Ope your doors and take me in,
Spirit of the wood;
Take me—make me next of kin
To your leafy brood.

—Ethelwyn Wetherald.

It is stated that Professor Adam Shortt, Chairman of the Civil Service Commission of Canada, will shortly bring out a report containing some very useful information on the management and efficiency of the Civil Service of Great Britain. Dr. Shortt made an extensive investigation of the Service during a recent visit to the United Kingdom.—*Canadian Engineer.*



REINDEER HERD, purchased by the Dominion Government from Dr. Grenfell, of Labrador, and sent into the Northwest Territory as an Experiment.

IN ALGONQUIN PARK.

The following is clipped from the *Toronto Mail and Empire* and is from the pen of Mr. J. W. Johnson, M.P.P. of Belleville, Ontario. Mr. Johnson is not, we believe, directly interested in the forests, as he is an educationist not a lumberman, but he is deeply interested in them from the scenic and patriotic standpoint. This brief article shows the value of Algonquin Park, giving as it does to the busy man an opportunity of getting immediately and easily into the forest, and it also shows the strength of the appeal which the forest and forest conservation makes to every citizen interested in the welfare of his country. The article follows:—

‘While the thunder of a great storm was seemingly rending the surrounding forest and the accompanying lightning was leaping across the water of the lake and finishing its pranks among the trees, I was confined to the verandah of the Highland Inn, and spent the time writing what follows:

‘One sees hill rising above bluff, mountain stretching higher than hill, all having their base on the shores of deep and beautiful lakes of clear, pure, sparkling and translucent water, absolutely free from contamination or the possibility of impurity;

and growing on the bluffs and hills and mountains is the primeval forest composed of such a variety of trees and underbrush that none but the forest rangers could name and classify them, and only they could name all the wild animals that range, without fear of man or gun, in every portion of Ontario’s great Forest Reserve.

‘Wandering through the woods, closely observing, one witnesses reforestation by nature on an extensive scale: life out of death is rising from the trunk of the rotted giant pine lying prone upon the ground, and also from its now detached bark, which, while preserving the original form and very shape and enervation, falls into dust and ashes at the touch of the fingers. The young tree is sprouting or has attained substantial growth, its sustenance, as well as the place of its origin, being the debris and mould left by its predecessors of remote and recent years. Not the pine alone is thus recreating, but the fallen trees of every kind, notably the balsam, spruce and birch, and also the dead branches and the leaves that have lived and died during a thousand years are associated with this miracle of life from death.

‘The air filters through the branches of the pine and spruce and balsam, weighs heavily on the eyelids, and gently induces, yea insists on, sleep and rest.’

With the Forest Engineers.

Canadian Society of Forest Engineers.

Mr. J. E. Rothery of Vitale & Rothery, 527 Fifth avenue, New York, has been elected a member of the C.S.F.E. Mr. Rothery has just completed the field work of a survey of the limits of the James McLaren Co. of Ottawa, covering about 2,500 sq. miles. These limits have been mapped and cruised and all information will be shown on the finished map.

Messrs. Piché & Bedard of the Quebec Government Forest Service have just issued a Bulletin No. 2, 'Étude sur les Forêts de la Province de Québec.' This is largely a compilation and shows: the forested areas by Provinces of Canada, the value of the forest products of Canada by kinds of uses to which the wood was put, the areas of forest in Quebec and how divided, Government licensed, unlicensed, privately owned, reserves, etc., a count of the whole number of trees by species on 45 acres of land, list of Government reserves, list of names of trees occurring in Quebec, scientific, French and English, total quantities of wood cut since 1871, and total revenue therefrom.

Mr. W. N. Millar has taken the Professorship made vacant by the resignation of Mr. A. H. D. Ross at the University of Toronto.

Mr. Ellwood Wilson has finished the survey of 2,500 sq. miles for the Laurentide Company, Limited, showing the water-courses, roads, trails, boundary lines, telephone lines, etc., also timber conditions, burns, cut over areas, etc. This survey was built up on closed traverses with an average error of closure of 1:300. Some reindeer have also been imported from Newfoundland and will be trained to take the place of sled dogs.

Faculty of Forestry University of Toronto.

Registration in the Faculty has now filled up the ranks of students to practically the same number as last year, namely 50. Of this number 20 are newcomers, precisely the same number as entered last year. Just half of last year's freshman class did not return for various reasons, four having enlisted.

The students of the third and fourth years went into practice camp at the beginning of the term under the guidance

of Professors Millar and Howe. The camp is located in Vernon township, north of Nairn and west of Sudbury, where the Graves, Bigwood Company is operating. The men returned on Oct. 29, having had an unusually successful campaign on the usual lines.

Professor Willis N. Millar, formerly inspector of Forest Reserves in the Dominion Forestry Branch at Calgary, takes the place of Mr. A. H. D. Ross as lecturer on Mensuration, Utilization and Protection. He comes with a wide practical experience both in the United States and Canada.

Dr. Howe was employed during the summer on reproduction studies in British Columbia for the Commission of Conservation, and will presently have interesting data for publication on that score.

New Brunswick Forestry School.

The war does not seem to have materially affected the Forestry Department of the University of New Brunswick and the classes, with the exception of the freshman are larger than usual. There are four seniors, twelve juniors, twelve or more sophomores, and three freshmen, besides a few men taking the combined five-year course in Forestry and Engineering.

During the past summer the majority of the students were engaged in forestry work. Five juniors spent a profitable summer with the Dominion Forestry Branch. These were Messrs. Vavasour, Holman, Hipwell, Ketchum and McGibbon. Of the sophomores, Messrs. Gibson, Webb, Miller, Jewett, Armstrong, Townsend and Barnes were with the New Brunswick Land Company, and Messrs. Jago, Maimann, Atkinson and Horncastle with Rothery & Vitale in Quebec. Maurice Williams, another sophomore, spent the summer with the St. John Log Driving Company, while some of the others were engaged in engineering work or attended the military camp at Sussex, N.B.

H. C. Belyea, of the class of 1911, is at Yale Forest School specializing in silviculture and finishing his M. F. degree.

Field work will be carried on until Christmas on the tract of land belonging to the university, the juniors and sopho-

mores being given assigned work in mensuration and silviculture. Later they will assist in carrying out a lumbering and wood-cutting operation, and will be given some experience in marking timber for cutting. The seniors are pursuing courses in wood structures and lumbering, and are making a topographical survey of the university grounds. The juniors are also required to take railway construction and do field work in laying out curves and spirals with the engineering students.

The college is pleased with the record its students are making. In British Columbia three of them are District Foresters, Messrs. Caverhill, Murray and Prince.

Dominion Forestry Branch Notes.

Mr. A. B. Connell, Forest Assistant, has completed his survey of the Pelican Mountain district, Saskatchewan, and has taken up his work as Forest Assistant in connection with the office of the District Inspector, Prince Albert, Sask. Mr. H. A. Parker, who was engaged as Mr. Connell's assistant, has been transferred to the Lesser Slave Forest Reserve.

Mr. A. V. Gilbert, student assistant in charge of Saskatchewan Survey No. 1, has returned to college, as has also his assistant, Mr. D. Greig.

Mr. J. B. Hipwell, student assistant to the Timber Berth Survey party, which operated in connection with Crowsnest and Clearwater Forest Reserves, has resumed his studies at college.

Forest Assistant G. S. Smith, who had charge of Saskatchewan Survey Party No. 2, has returned east and will finish his reports at head office, Ottawa. His assistant, Mr. Hughson, has returned to college.

Mr. K. Vavasour, of the University of New Brunswick, Fredericton, who had charge of Saskatchewan Survey No. 3, has returned to college. His assistant, Mr. G. M. Dallyn, has returned to Toronto University Forest School.

Mr. E. B. Prowd and assistant, Mr. H. A. Porteous, who were surveying in Eastern Manitoba, have returned to their studies at Toronto University Forest School.

Messrs. A. M. Thurston, J. F. L. Hughes, R. A. R. Campbell, and C. R. Mills, who were engaged in reconnaissance work in British Columbia, have returned to college.

Student Assistant T. F. Rance, who had charge of the Cold Lake Survey party, has returned to college, along with his assistant, Mr. F. J. McGibbon.

Mr. C. H. Morse, who has been Acting Forest Supervisor of the Clearwater Forest Reserve, returned to Toronto Forest School late in October.

FOREST PRODUCTS LABORATORY MOVES.

The Dominion Forestry Branch Forest Products Laboratory at McGill University, Montreal, has moved from the old medical building to the Molson building fronting on University street. Mr. J. S. Bates, the chief of the Laboratory staff, has returned from North Carolina where he investigated the possibilities of the distillation of British Columbia yellow pine. The work of the laboratory in the different lines of investigation will go forward more rapidly now that the removal in contemplation for some time has been effected.

PIT PROPS FOR GREAT BRITAIN.

The closing of the usual sources of supply by the war has caused an enquiry from Great Britain for pit props and mining timber generally. The British Board of Trade sent out a commission, which visited Ottawa and various points in the Maritime Provinces, with a view to obtaining figures as to cost and shipping facilities. The Commission was composed of the following gentlemen: Messrs. W. Windham, representing the Board of Trade; David Harrower and Norman Cumming, representing the Federated Timber Trades; Ridley Warham and Mr. Warrington, representing the Federated Collieries, and R. Sommers, Secretary. In Ottawa they visited the Department of Trade and Commerce and the Dominion Forestry Branch. At the latter they were able to secure considerable definite information, as, in addition to the general statistics collected, the Branch has had, during the past season, an experienced mining engineer, Mr. J. W. McLeod, assisted by Mr. B. R. Morton, one of the technical officers of the Branch, working on this matter in Nova Scotia. The British Commissioners were not authorized to make contracts, but were to spy out the land, and it is likely that if a connection can be established this trade will become permanent. Certain sections of the Maritime Provinces seem well adapted to the growing of pit props, and it was this, coupled with the desire of Canadian mine owners to know how they were likely to be situated for the future, which led the Forestry Branch to undertake this special investigation, the results of which will doubtless be available shortly.

The Department of Lands and Forests, Quebec, on October 20, offered for sale by public auction a number of permits to cut timber in certain districts. The average price obtained was \$238 per square mile, permits for 1,036 square miles being sold.

Canadian Forestry Association

THE Canadian Forestry Association is an independent organization of patriotic citizens, which has for its object the highest development of the soil and resources of Canada by urging governments, municipalities and owners generally to devote each acre to that for which it is best suited, and particularly to keep under forest those soils fitted only to grow trees.

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