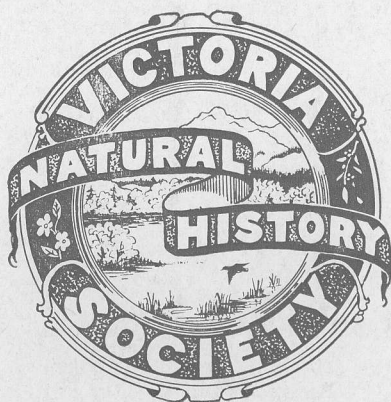


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THE VICTORIA NATURAL HISTORY SOCIETY

The February Monthly meeting of the Society was held as usual in the Provincial Library Reading Room. The Vice-President, Mr. Colin Curtis, took the chair. After some business Dr. Carl spoke to the members on "Nature's Submarines". A summary of his talk follows:

Marine animals which have to come to the surface to breathe, i.e. Nature's submarines, all lived, at some time, on land. There is, in the Victoria Museum, the hind leg of a whale taken off the west coast of V.I. The front flippers of a whale have four vestigial finger bones.

Mammals which have taken to living in the water have had to solve five problems in order to survive.

1. Insulation
2. Breathing
3. Feeding
4. Reproduction
5. Locomotion.

As heat is conducted away in water 27 times as fast as in air, some effective insulation for the mammal is obviously essential. Some use fur, as do fur seals, some have hair and a very tough hide; and the whales and porpoises use a thick layer of blubber. It is not at all certain that the only purpose of blubber is insulation since marine mammals living in tropical regions also have it. (Those mammals particularly referred to are the sea-cows and the dugongs.)

In the forehead of certain whales is a bulbous mass containing spermacetti oil. No one knows what purpose it serves. Newly born whales have whiskers and the skin of whales is very thin.

The respiration problem has been overcome by means of special valves which hold air in the lungs while the mammal is under water. This enables better use to be made of oxygen. Mammals have more red blood cells and larger lung space though not

as large as one might expect. A whale blows out all its used air at once and intakes at almost the same time. A porpoise can expire and inspire in one-twenty-fifth of a second.

It has been suggested that blubber serves an additional purpose of holding carbon dioxide.

The feeding of marine mammals is facilitated by long intestinal tracts which enable them to make more efficient use of their food. A sea lion has 264 feet of intestine.

Seals and sea-lions are sometimes found to have stones in their stomachs the purpose of which is not certain.

In a porpoise teeth are used only for grasping. In the sperm whale only a few teeth are left and these are for crushing. Some whales have no teeth at all but use a fringe of what we know as whale-bone as a filter.

Ambergris is the product of indigestion in the sperm whale. An oily mass found at sea or on a beach is only ambergris if it contains heads of squids.

Hair seals land anywhere to give birth, but fur seals return to the same spot year after year. Fur seals swim from birth. Whales and porpoises are independent of land for giving birth as they do so at sea. The gestation period is probably eighteen months. Whales only live about forty years.

Marine mammals have learned to travel rapidly in water as they must cover great distances in search of food. Those that can move on land do so with varying efficiency according to the species.

FOREST INSECT WORK IN OUR B.C. FORESTS

The Dominion Government through its development of its Forest Insect Laboratory at Victoria is helping to protect the forests of British Columbia from insect devastations. The work of this laboratory, the organization, and its function will no doubt hold considerable appeal to many naturalists.

The staff in the Victoria laboratory, under the direction of Mr. H.A. Richmond, is organized into two groups. The first group of men, although not technically trained, have a wealth of experience in this type of work which enables them to carry out the Forest Insect Survey. The other group, the technical staff, is made up of men who are specialists in statistical methods, insect pathology, meteorology and forest and insect ecology, along with the general forest entomologists who must attempt to apply the discoveries of the specialists to insect control.

The enemies of the forests may be classed in three main groups; they are, fire, tree diseases and insects. Fires have received the greatest public support and interest in the past, due chiefly to the nature of fire; although in actual damage sustained, many authorities rate insect losses in the forests equal to or greater than loss from fires. Tree diseases are constantly killing trees, destroying wood and reducing growth throughout the forests. The Forest Pathological Service, like that of Forest Entomology is only now being recognized as an essential organization in the retention of our forest wealth.

In the growing of our forests, as in any other crop, we are confronted with devastating outbreaks of insects which at times destroy the timber either wholly or in part over hundreds of thousands of acres, or through partial damage retard growth for many years or weaken timber making it an easy prey for disease. Two

very general classes of destructive forest insects are the bark beetles and the defoliators.

The bark beetles feed and live in the vital cambial region of the tree's trunk. When environmental conditions are suitable they can breed into such large numbers that the tree cannot secrete enough resin to flood them out. It is then that they kill the tree by extending a series of tunnels that completely girdle the trunk. Such epidemics have destroyed thousands of acres of Lodgepole, Yellow and White pine in Canada and the United States.

The defoliators are insects which in their larval stage feed on the leaves of the trees. Most Victorians will be very familiar with this group because of the recent epidemics of the Oak Looper and the Tent caterpillar in this city, and more indirectly because of the epidemic of the Hemlock Looper on southwestern Vancouver Island. Such insects usually cause only decrease in the growth of the tree, but when they breed in epidemic proportions they may cause complete defoliation for several growing seasons. Such repeated defoliations will kill the trees.

You will be interested to know what measures are taken in detecting and controlling these infestations. First and foremost it is necessary to know how many insects are in the forests at any given time, and where they are concentrated. It is here that the Forest Insect Survey plays its role. The rangers travel by boat, automobile and on foot sampling the forests to determine what insects are potentially dangerous. Each forest insect laboratory across the Dominion has a similar staff engaged in this type of work. Two of the most common methods of population sampling are the "beating" method and the egg count method.

In the beating method a standard sized canvas sheet is spread under a small understory tree. The branches of the tree are then brushed or beaten with a long pole. The insects that fall on the mat are

collected and immediately mailed to the headquarters (x) of the survey where they are reared to determine their life histories, the incidence of parasitism, disease etc. The forest insect survey is a cooperative undertaking supported by the B.C. Forest Service, the forest industry and others. It is here that amateur naturalists may assist through sampling and observing insect prevalence and reporting to the Forest Insect Laboratory. Early detection of unusually large populations of insects in the forest is as important to forest protection as the early detection of fire.

The egg sampling method is used with such insects as the hemlock looper which overwinters in the egg. The eggs of these insects are laid chiefly in the moss on the trees during the fall and then hatch in the spring into the larval or caterpillar stage. Any time during late fall, winter, or early spring, sample trees are felled and egg counts taken on a standard area of moss at different heights on the trunk. In this way the population for that district for the next season can be predicted.

The foregoing are but two methods of sampling. New and better methods are constantly being devised with the aim of standardizing sampling for different insects in various forest types. The objective is to determine where the balance of nature has been upset so that steps can be taken in controlling the insect before it is too late. Unfortunate cases have resulted where there have not been enough men available to cover the forests.

(over)

(x) In this province the Forest Insect Survey's headquarters is at Vernon. For more complete information write to "The Forest Insect Survey, Post Office Box 308, Vernon, B. C."

When the epidemics or potential epidemics have been detected, they are surveyed to determine the area infested. The research workers then take over and make a more detailed study of the problem. A great deal of basic work must be done; such as studies of the life history, habits and natural enemies of the particular insect. No method of control is employed until studies insure that the measure will not further upset the balance and thus be more detrimental than beneficial. Nature itself is the greatest force fighting these abnormal outbreaks, and often the best method of controlling them is to aid nature by releasing parasites, or by spreading and speeding insect diseases. The collection, rearing and release of parasitic insects has for many years been recognized as one of the best methods of aiding natural control. Increased knowledge resulting from recent research in virus diseases leads to the belief that in the field of virus lies the greatest hope for the eventual solution of insect problems. The hemlock looper infestation was brought under natural control chiefly by a virus disease, although only after the insect had damaged a large volume of valuable timber. In the future it may be possible to prevent serious damage by early control of such an infestation with the aid of diseases.

Chemical control is another method that is becoming of greater importance with the development of better insecticides. The use of insecticides as D.D.T. has several serious disadvantages. In the first instance it is equally as detrimental to the beneficial insects as to the harmful ones, and can be criticized on the grounds of its possible harmful effects to other cold blooded animals if improperly applied. Spraying of forest stands is not only extremely expensive, but in this mountainous terrain is very dangerous and in many regions it is totally impossible. Spraying does not remove the factors that are allowing the insect to breed into large numbers; and although it may kill ninety percent of the insects it still leaves enough to go on breeding.

Its chief value lies in preventing the immediate damage that would be caused during the "lag" of natural control factors.

While most of our province is covered with virgin, unmanaged forests we must expect these upheavals in the balance of nature, and methods must be devised for preventing as much damage as possible. But, as we replant and plan, or "farm" our forests, we must replace our high hazard stands (such as pure and overmature stands of hemlock) with more fire, disease and insect resistant forests. It is for this reason that the Forest Entomologist must be a forester as well as an entomologist. It is hoped that these trained men, working in cooperation with the public and the forest industry, will in time, contribute to the reduction of forest insect damage in order that such may be kept at a minimum.

J. M. Kinghorn.

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New Members since the compiling of the above list:

Mr. Spencer Pearse Mr. M. Jackson

Mrs. Unity Baile.

BIRD NOTEFirst Swallows:

Mr. W. H. Warren, busy Superintendent of Victoria's Parks, has sent in the following dates of his observance of first arrivals of swallows. Record of species seen is not given. No doubt some of our members living in the Victoria area have kept such a record over a number of years.

We shall be glad to receive such records, giving localities, dates and identification of species where noted.

1933 - - - - March 12th
 1934 - - - - March 13th
 1935 - - - - March 30th
 1941 - - - - March 12th
 1942 - - - - March 26th
 1943 - - - - March 19th
 1944 - - - - March 15th
 1945 - - - - March 26th

J. O. Clay.

BOTANY GROUP MEETING

On January 20th members of the Botany Group met to hear Mr. Hammond speak on conifers in B.C. We regret that space is not sufficient for us to report more fully Mr. Hammond's most interesting as well as instructive talk on how to identify B.C. conifers. The Dept. of Forestry has issued a 'Pocket guide to Shrubs and Trees of B.C.' which can be obtained at the Museum for 30 cents, and this little book should be of great help to those who wish to increase their knowledge of conifers in B.C.

We feel that the Botany group is to be congratulated on the enthusiasm of its members.

NOTICES OF MEETINGS

1948

Tuesday Geology Group meeting in Dr. Carl's
March 2nd office at 8 o'clock.
Speaker: Mr. Winkler.

Tuesday Monthly Meeting in the Museum at
March 9th: 8 o'clock.
Speaker: Mr. W. H. Turnbull, Prov.
Apiarist from Vernon.
Subject: "The Bee's Workshop."

Monday Audubon Screen Talk in the Prince
March 15th: Robert House at 8 p.m.

Tuesday Geology Group meeting in Dr. Carl's
March 16th: office at 8 p.m.
Speaker: Mr. Winkler.

Tuesday Marine biology group meeting in
March 23rd: the Museum at 8 p.m.

Tuesday Geology Group meeting in Dr. Carl's
March 30th: office at 8 p.m.
Speaker: Mr. Winkler.

Tuesday Bird Group meeting in the Museum
April 6th: at 8 p.m.
Mr. Clay and Mr. Hardy will show members
how to make use of the specimens in the
Museum to further their knowledge of our
local birds.

Victoria Natural History Society

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To

Mrs Davies

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Victoria