George A. Hardy

The VICTORIA NATURALIST

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FLY AGARIC.
Aminita muscaria.

THE VICTORIA NATURALIST

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On October 10th the regular monthly meeting of the Society was held in the Members' Room of the Parliament Buildings. Mr. W. H. Mathews, who acted as Chairman, called the meeting to order. The subject of the menace of crows to the smaller bird life in the Oak Bay region was introduced by Mr. A. L. Meugens. After a discussion which indicated that other members of the Society felt that Crows are harmful to small birds, Mr. J. O. Clay moved that the Oak Bay Police and the Provincial Game Warden be asked to help reduce the number of crows in lower Vancouver Island. This motion, seconded by Mr. F.B. Pemberton, was carried unanimously. After the introduction of several new members to the Society, Mr. W.P.D.Pemberton gave an address with many interesting coloured slides. A summary of this address follows:-

Unusual Local Native Plants

The presentation of this subject was, in fact, not so much an address, as a showing of colour slides of a large number of our local wild plants, together with a number of their relatives which have been imported from other parts. The speaker, briefly sketched the origin of his project, which at its inception was intended to become a photographic flora of Vancouver Island. However, wartime restrictions on motoring had interfered with the securing of more distant specimens, and recourse was had to those wild plants which were to be found growing in the gardens of interested collectors.

The slides were presented alphabetically, by genera, and included upwards of one hundred and forty species and varieties. Not the least impressive feature of the collection is the skill with which the difficulties inherent in colour photography under sometimes adverse conditions have been surmounted.

Perhaps the outstanding feature of the collection was the fine series of Pentstemons, which included specimens from Okanagan, Crow's Nest, Eastern Canada, Mt. Hood, and the mountains of Washington, as well as local species. An example of hunter's luck was the excellent specimen of Lobelia dortmanni, which is normally completely sub-aqueous in habitat, but was found by Mr. Pemberton in full bloom, although exposed by low water down to its basal rosette of leaves. That interesting group, the saprohpytes, was represented by the Pinesap, Hypopites, and the two fine specimens of the Indian Pipe, Monotropa, and there were two fine studies of the Broom-rape, Orobanche uniflora which grows as a parasite on our local sedum.

Space does not permit mention of every slide shown. In closing, we hope that conditions will very shortly be such that Mr. Pemberton will be enabled to carry to a successful conclusion the project he has carried to its present very delightful stage.

L.Colin Curtis.

MUSHROOM TIME:

This is the season of the year when the ardent naturalist, ever on the alert for something fresh, not only renews acquaintance with old friends of past happy days, but often adds to them. He is in agreement with the immortal bard when he says "I know a bank whereon the wild thyme blows ---" substituting perhaps the name of the flower suited to the occasion. In the present instance mushrooms might well be used instead for they are very partial to favoured localities where they may be found from year to year.

We do not need to ramble far from home ere auld acquaintance is renewed, or leave the house indeed, for on the lawn old revellers have left their tracks in the form of fairy rings, each touch of the fairy's lightsome toe resulting in the upspringing of one of

the many pale, tan-coloured mushrooms that mark her circuit--or so the story goes. The prosaic truth of course is that the densely packed hyphae or feeding threads have exhausted the central portion of the ring, forcing the mycelium to seek the outer periphery for future expansion. As the mycelium may, under favourable circumstances, live for an indefinite number of years the ring gets larger and larger. This particular little mushroom is called the Fairy-ring Mushroom, Marasmius oreades. (Page 58 second left).

If we now venture out into the garden it is quite possible we may find a specimen or two of the Shaggy-mane, Coprinus comatus, (Page 58 bottom right) growing on the edge of the path; the soft, fluffy, elongate caps of the younger stages being of exquisite daintiness in marked contrast to the fluid, ink-like dissolution of the mature forms. This surprising change in appearance is not due to a bacterial rot but to a chemical change in the tissues with the object of freeing the spores from the tightly packed gills. In the early stages of its growth this is a most delectable article of diet.

We leave the garden and crossing the road wander down the woodland path beyond. Among the vegetable debris we observe a quantity of small rough-surfaced little balls on short thick stalks. These are Gem puffballs, Lycoperdon gemmata. (Page 58 top left).On close examination they are seen at maturity to possess a tiny aperture in the centre of the upper surface, which emits a cloud of "dust" should the ball be squeezed. Here we find is the explanation of the name puff-ball. Each speck of this "dust" consists of a minute spore capable of giving rise to a new generation.

Further along the path and to one side of it we find an open space covered with decaying leaves. Among these we see a number of curious star shaped bodies

each with small puffball-like structure in its centre. These are indeed relatives of the true puffballs we have just been looking at, but they have an additional outer covering that splits open into the star arrangement. This originated the name of Earth stars by which they are popularly known. The thick inner coats have hygroscopic properties causing them to expand in wet weather and so preventing movement, also to contract in dry weather thus allowing the "stars" to roll about thereby permitting a wider distribution of the escaping spores. The species illustrated is Geaster triplex. (Page 58 bottom left).

On an old log lying near that bush over there we next observe a pretty array of miniature shelves closely overlapping, each shelf displaying a series of variegated shades of greys and purplish-browns, its edge wavy or frilled and of a much lighter colour. The under side is composed of a large number of tiny holes or pores, within which the spores are produced. These upon ripening drop down to the open air, there to be scattered far and wide by the wind. This is the Painted polypore, Polyporus versicolor, a common kind wherever suitable conditions prevail. (Page 58 third left).

Of a similar structure to the foregoing is the Large Shelf Fungus, Fomes apolanatus, (Page 71) which we see high up on the trunk of that old Black Poplar tree in the hollow yonder. A sure indication that all is not well with the tree and that it is in an advanced state of decay since the shelf is the product of the ravages of the destructive mycelium within the substance of the tree trunk.

At one side of the trail we come across a patch of burnt-over land, so we are on the alert for signs of Morels which are addicted to such terrain; in fact they might be termed the fireweeds of the mushroom world. They differ from the typical mushroom arrangement for spore production in that the spores are concealed in microscopic sacs thickly lining the hollows

in the rugosities of the "cap". When ripe the little sacs suddenly burst in batteries throwing out the spores in such numbers as to resemble thin smoke. The edible qualities of the Morel are universally famous. We should look for Morels in the spring months. (Page 58 second right).

Continuing our way, we arrive at a grassy level where an old pasture adjoins the wood. Here a small group of mushrooms is seen growing; these look very much like our old friend, the common mushroom, but are somewhat larger and from their habit of woodland preferences are named Psalliota silvicola. (Page 58 third right). We note the pink or brownish gills and the absence of a volva or cup at the base of the stem, thus proclaiming it to be at least not poisonous.

In contrast to the preceding species, we never know when we are going to meet with the Destroying Angel, Amanita phalloides. (Page 58 top right). At first glance it might be mistaken for the Common mushroom, but on looking closely we shall note that the gills are white, while the base of the stem is set in a cup the edges of which may or may not be free of the stem. It is naturally a woodland lover but occasionally comes up in lawns that may have originally been part of a wood or have been dressed with compost taken from under trees. So far it does not appear to have been recorded from the Victoria district.

Before leaving the woodland path for the highway leading back home we see under some trees near the edge of the path a solitary mushroom of fair size and of a yellowish colour. The top of the cap is sprinkled with white, wart-like scales, the gills are white, the stem thick, swollen at the base which

is set in a closely adhering cup the edges of which have broken away in the form of a series of rings slightly separated as the stem elongates. This is the fly Agaric, Amanita muscaria, a dangerous kind if eaten and which has been responsible for a number of fatalities. It is quite frequently found about Victoria. (See front Cover).

No doubt we shall have seen other sorts of mushrooms in the course of our stroll, some of which may have puzzled us as to their identity, but if we arrive home with a certain knowledge of a few we will have that delightful feeling of accomplishment which is always conducive to further effort.

George A. Hardy,
Provincial Museum,
Victoria, B. C.

We are greatly indebted to Mr. A. R. Whittemore of "Canadian Nature" who so kindly lent us the cuts for the excellent illustrations in this issue. The page of Mushrooms and the frontispiece of "Amonita Muscaria" were originally photographed for that magazine by Mr. Hugh M. Halliday.

"Canadian Nature" contains a wealth of information in the realm of natural history and is splendidly illustrated. We would recommend it to our readers as a publication that covers a vast field of nature subjects in an interesting and authentic manner.

Editor.

HEREDITY (continued)

Before explaining the results we obtained with crossing red and white four-o'clock flowers and mating a horned bull with a hornless cow, it is necessary to consider what happens when reproductive cells unite to produce progeny.

WHAT HAPPENS WHEN THE REPRODUCTIVE CELLS UNITE?

The following description is taken from a book by Dr. A. H. R. Buller, who not only understood the facts of his science of botany, but had a feeling for its poetry as well. Telling how all Marquis Wheat plants came originally from a single kernel or seed, the offspring of a cross between Red Fife and Hard Red Calcutta selected by the famous Canadian plant breeder, Charles Saunders, Buller wrote:-

"Pollen dust from some stamens removed with forceps from a few flowers of (Red Fife) was placed on the two feathery stigmas of a flower of (Hard Red Calcutta). The pollen grains germinated, each grain producing a single pollen tube. The pollen tubes, which were extremely delicate cylindrical structures grew down the stigmas and made their way by elongating at their apices into the ovary below. This ovary was a tiny chamber containing a single ovule or potential seed attached laterally to its wall. One of the pollen tubes guided by chemotropic stimuli directed its course toward the ovule, intered at its mouth of micropyle, and penetrated into its interior as far as the ovum or egg-cell. The egg-cell, having been reached, the wall at the tip of the pollen tube liquified and broke down, and from the opening so

produced there were emitted two exceedingly minute dense rounded masses of gelatinous protoplasm known as male nuclei. One of these nuclei, carried by forces as yet not perfectly understood, advanced through the general protoplasm of the egg-cell toward the female nucleus situated in its centre. The male and female nuclei, after coming into contact, brought their affinity for one another to a climax by mingling together and forming one whole; and this nuclear fusion, this formation of a single nucleus from two others of opposite sex, marked the completion of the act of fertilization. ---------- Without fertilization the egg-cell would have withered and died; but its fertilization having been accomplished, a most extraordinary future was opened to it. Further developments became irresistable, with the result that in the course of a few years, its products became in numbers like the stars on a clear night, or the grains of yellow sand upon a sea beach."

When the male and female nuclei fuse, the resulting single nucleus becomes the embryo of a new plant.

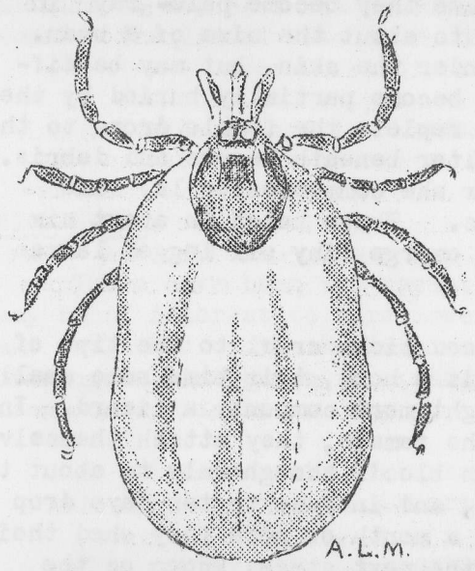
The details of the process of fertilization in animals differ somewhat from that in plants, although the end result in each case is a new individual, which received half of its heredity from the male parent and half from the female parent.

W.R. FOSTER,
PROVINCIAL DEPARTMENT
of AGRICULTURE,
VICTORIA.

The Pacific Coast Tick. Ixodes pacificus.

Cooley & Kohls #

There are some twenty different species of tick in British Columbia. Those of outstanding importance include the paralysis tick and the winter tick which infest interior livestock, and the Pacific Coast tick which attacks humans, deer and domestic animals. The latter pest is particularly common at West Vancouver, Harrison Bay, Cultus Lake and the Malahat. The adult ticks are small, flat and have eight legs. The male is about one sixteenth of an inch long and is shiny black in colour. The female is nearly twice as long, has black legs and head and a reddish-brown body.



Female Enlarged.

In the fall, winter and spring these ticks climb to the tips of grasses, shrubs and other low growing vegetation where they await the passing of some animal on which to feed. This host may be a dog, cat, man, or some other warm blooded animal. As the host brushes by the vegetation the tick releases its hold, climbs on the animal, and after wandering about for an hour or so, proceeds to attach itself by means of its small barbed mouth parts. Since the ticks usu-

#Contribution No.2324. Division of entomology, Science Service, Department of Agriculture, Ottawa, Canada.

ally crawl upwards they often lodge around the neck and head of the animal, giving the impression that they have dropped on it from above. Ticks do not drop, jump, or fly, as is sometimes believed.

The males feed repeatedly for short intervals, leaving sores at the sites of their bites. They are frequently found beside the engorging females. The females remain attached and feeding for about eight days, during which time they become pale-gray in colour and distended to about the size of a bean. They do not burrow under the skin, but may be difficult to remove and become partially buried by the swollen wound. When replete the female drops to the ground and seeks shelter beneath leaves and debris. About two weeks later she commences to lay some thousand or more eggs. These hatch in about six weeks, and from them emerge tiny six legged larvae that resemble mites.

The larvae or seed ticks crawl to the tips of grass blades and await a host, this time some small bird or mammal, thought more commonly a lizard. In the same manner as the female, they attach themselves, become distended with blood, though only to about the size of a pin's head, and in four to ten days drop off. After an interval of a month or more they shed their skins and emerge as the next stage, known as the nymph. The latter has eight legs and is little more than a thirty second of an inch long. As nymphs they repeat the performance of the lavae, climbing the vegetation, attaching to a host, filling with blood, then dropping off. After a period of rest the skin is shed for the last time and the male or female form appears.

While it has not been known to transmit any diseases in British Columbia this tick does cause severe discomfort when it bites and often leaves slow healing sores after it has been removed. Since the mouth parts of this tick are particularly long it is

usually difficult to remove. While not always reliable, the application of kerosene, a lighted cigarette or other irritating material to the tick may cause it to release its hold. Failing this it should be grasped firmly, but not squeezed hard (thereby forcing toxic substances into the flesh) and a continuous twisting pull applied. The removed head should be capable of being divided with the aid of a needle into three distinct parts. If the middle barbed portion is missing it may have broken off and be left in the wound. The latter should be disinfected with iodine.

J. D. Gregson,
Dominion Livestock Insect
Laboratory,
Kamloops, B.C.

BIRD NOTES:

There have been two recent publications that may be of interest to bird lovers, both by Mr.A.L.Rand and published by the National Museum of Canada, Ottawa, in mimeograph form which may be obtained, free, on application.

"Some Aspects of Canadian Birds"
Special Contribution - 43-3.

This contains an interesting collection of notes concerning nimbers, distribution, feeding, nesting, behaviour, age, speed of flight etc.

"Some Familiar Canadian Birds"
Special Contribution - 43-4

This contains notes and illustrations of about two dozen common Canadian birds.

Editor.

NOTICE OF MEETINGS

MONTHLY MEETING -

Tuesday, Nov.14th — Provincial Library Reading Room
Speaker: Mr. W. Downes

- on -

"BENEFICIAL INSECTS
and How We Use Them."

At this meeting a film will be shown and the Conveners of the group meetings will give reports on their respective meetings which have been very well attended and of exceptional interest.

GROUP MEETINGS —

Nov.21st — Botany - - - - - - Archdeacon Connell
"Plant Classification"
Biology Lab., Victoria College, Joan Cres.

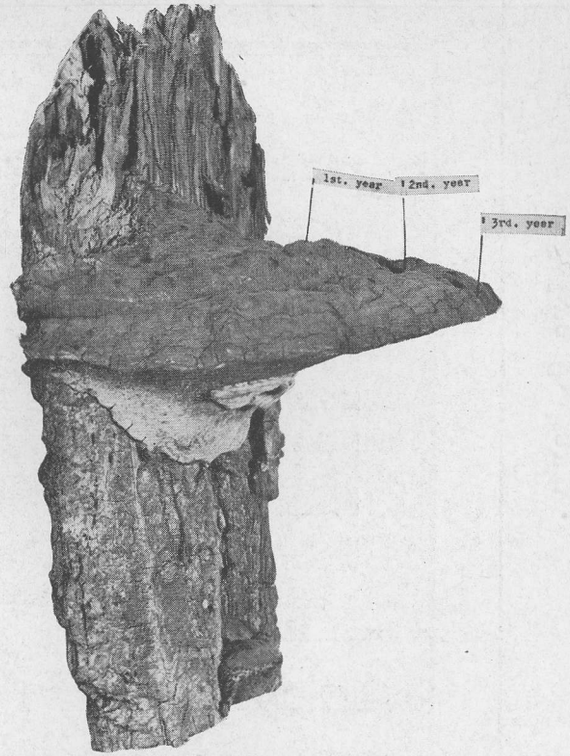
Nov.28th — Zoology - - - - - - Dr.Clifford Carl
"Locomotion in Fishes"
Biology Lab., Victoria College, Joan Cres.

Dec. 4th — Ornithology - - - - - Mr. J. C. Clay
"Songs of British Columbia Birds"
Biology Lab., Victoria College, Joan Cres.

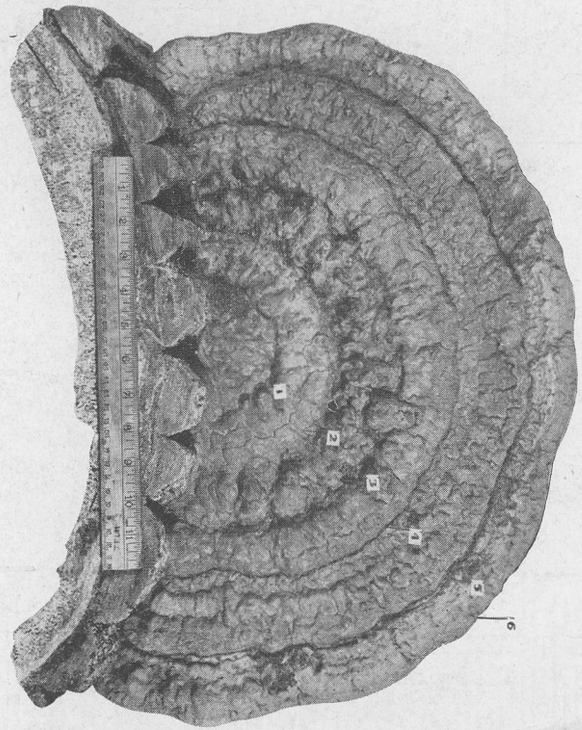
ALL MEETINGS AT 8 p.m.

NOTE: There has been a very gratifying increase in the number of new members during the last month. If you know anyone who is interested and likely to become a member, please give their name to the Secretary, Mrs. K. Watson; a P.C. and copy of the current Magazine will then be mailed to them.

Editor.



BRACKET
Fungus.



To

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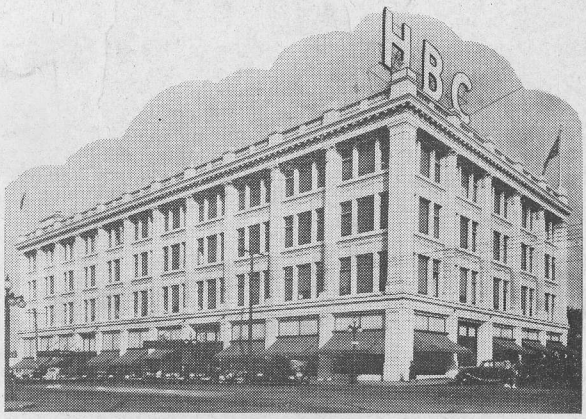

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NOTICE OF NEXT MEETING

The next meeting of the Society will be held in
READING ROOM OF PROVINCIAL LIBRARY, PARLIAMENT BUILDINGS
at 8 p.m. on Tuesday the 14th November, 1944

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