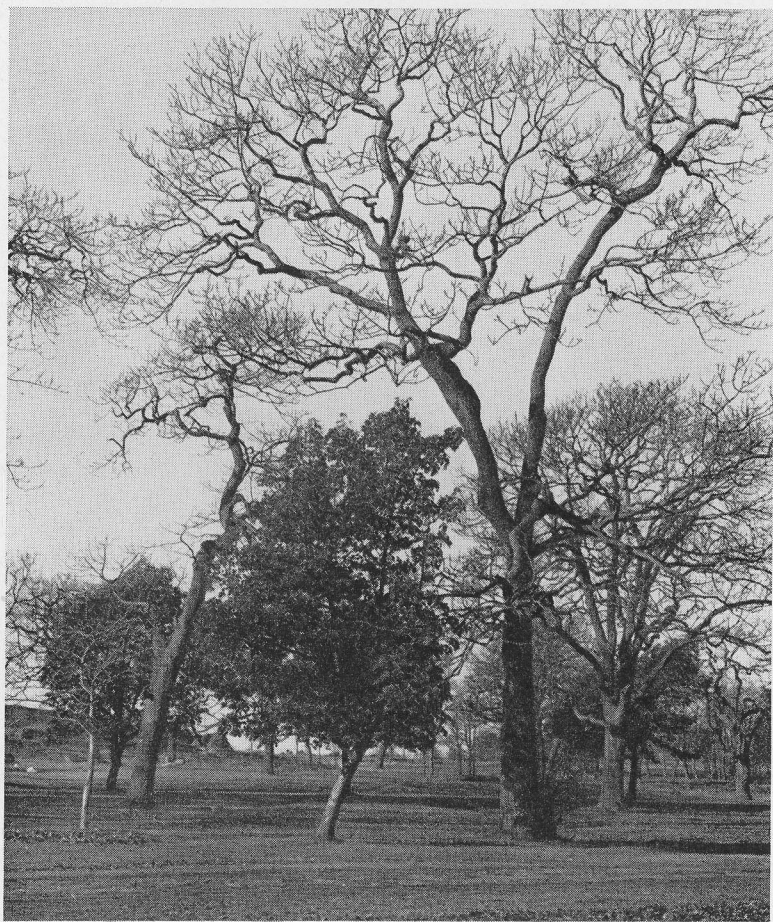


The
VICTORIA
NATURALIST

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Garry oak and madrona.

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Report of the October Meeting

The chief item of business concerned the proposed affiliation of the Society for the Preservation of Native Plants with our organization. After the matter was fully explained by the President a motion to the effect was unanimously carried by the members present. The President voiced a welcome to the affiliated Society as a whole and extended an invitation to its members to join our group.

The Secretary read a letter from Dr. Rolf Dirksen expressing great appreciation of a small parcel sent his family by this Society through CARE about a year ago. Dr. Dirksen is an ornithologist who has done work on bird behaviour and written several bird books. His address is (21a) Enger (Westfalen), Kreis Herford, Mellerstr. 321, Germany.

Among specimens exhibited were the following: Silver fish (insects) and their damage to wall calendar. (Mr. J. Galliford); Example of marcasite (iron sulphide) from Khutze Inlet. (Mr. G. Winkler); Fly agaric, poisonous mushroom from Little Qualicum Falls. (Mr. J. O. Clay); Lacquered bracket fungus collected by C. J. Guignet. (Mr. G. Hardy).

Mr. Lionel E. Taylor, botanist and horticulturist, was then introduced by the Chairman. Under the topic of "Flora and Fauna of South Africa" the speaker recounted his experiences while on a recent collecting trip. By means of a series of fine coloured slides (badly projected by poor equipment supplied by the Museum!) he showed scenes of typical country, parts of which had suffered drought for as long as five years. In such areas collecting botanical specimens was very disappointing. In more favourable districts many kinds of strikingly coloured wildflowers abound. Some of these, from which cultivated varieties have

been evolved, include Pelargonium, Clivia, Proteas (including the National Flower) and Mesembryanthemum (of which there are 2000 named species). Views were also shown of the Baobab tree, examples of which may reach a circumference of 89 to 139 feet; cream of tartar is made from the fruit.

Birds shown included flamingos, pelicans, egrets, and ibis; mammals were represented by hippos, wildebeest, giraffe, warthogs, lions and elephants. At certain storage tanks it was observed that elephants drank as much as 120 gallons of water a piece and at one time, taking more than one gallon in each trunk-full.

After conveying sincere thanks to Mr. Taylor for his most informative address the Chairman adjourned the meeting.

G.C.C.

SOCIETY FOR THE PRESERVATION OF NATIVE PLANTS OF BRITISH COLUMBIA

(The executive and members of the Victoria Natural History Society express a welcome here to the members of this newly affiliated Society. Since many of our members are not aware of the work being carried on by this sister organization we have asked its President, Mrs. Hugh McKenzie, to prepare the following outline.)

THE OBJECTS of the Society are:

- (a) To awaken general interest in the conservation of native plants.
- (b) To create public sentiment in favour of the enactment and enforcement of protective laws.
- (c) To urge the adoption of all practical measures for the protection and preservation of wild flowers, shrubs and trees of British Columbia.

The members of this Society have worked quietly over the years with these objects in view, but feel strongly that there is to-day a very real need for a more general interest in the conservation of our natural resources, and that in enlisting

the support of the Natural History Society, a younger generation may be induced to feel concern over destruction which is continually threatening or actually taking place, and to determine to do what is possible to preserve our natural inheritance, both for our own pleasure and for those who come after us.

Some of the activities of this Society are noted under the following headings:

SCHOOLS: In 1937 through the Department of Education the booklet "Wildflower Conservation Week" was printed and issued to the schools of the Province.

In 1940, also through the Department of Education, the pamphlet "Forest Conservation and Our Schools" was produced.

For several years members of the Society personally delivered copies of "Canadian Nature" to twelve rural schools and encouraged various nature activities. In 1941 an Exhibition of the work done in these schools was held in the Provincial Museum.

In 1938 and 1939 the Society sponsored two school poster contests on Flower Preservation and Danger from Forest Fire. Posters of the 1939 contest were viewed by Lord and Lady Tweedsmuir and Mr. E. C. Manning, Chief Forester.

Through the B.C. Forest Service the services of Mr. J. St. Pierre were loaned to various schools to demonstrate the use of wood carving tools, donated by the Society.

In 1940 we approached the Summer Schools and arranged for Mr. C. D. Orchard, Chief Forester, to give an address on Forest Conservation. The Society followed this up by producing a bulletin "Land Production Values of B.C." based on Mr. Orchard's address, which was sent to the teachers who had attended the lecture.

HIGHWAYS: Through the efforts of the Society the Dogwood Protection Statute was obtained in 1931. This was followed by an amendment in 1947 which extends protection to the native rhododendron, (R. californicum) stands of which exist in the Manning Park area and on Vancouver Island.

Through the Minister of Public Works a brief prepared by the Society on Highway Protection was distributed to each Road Engineer of the Province.

OTHER ACTIVITIES: The Society was instrumental in having signs put up in parks, forbidding the picking of wildflowers and in obtaining an amendment to the Municipal Act giving power to a Municipality to prohibit picking, uprooting or removal of wildflowers in park areas within its jurisdiction.

Partly through the Society's efforts the Provincial Government has adopted some measures controlling the gathering of bark of Rhamnus Purshiana from which cascara is extracted. This native tree has been much reduced in numbers and its extinction is still threatened.

For some years commencing in 1939 the Society arranged through Mr. Neal of the C.P.R. for notices to be placed in the Forbidden Plateau area forbidding the removal of native plants. These protective measures were abandoned during the war years but should be renewed in this and similar recreational areas which are now being opened up to the public. Members of the Victoria Natural History Society may be interested in assisting the newly affiliated Society in activities of this type.

Frank L. Beebe, who contributed the notes on the Long-eared owl and the Marsh hawk, is in charge of the animals at Stanley Park Zoo, Vancouver. He is well known as an artist, illustrator and bird student.

New Bird Book: "Birds over America" by Roger Tory Petersen is now available through the Service Department, National Audubon Society, 1000 Fifth Ave., New York 28, N.Y., at \$6.00 per copy. Contains observations and adventures among birds in all parts of North America; 80 pages of superb illustrations.

A MEMBER IS HONOURED BY THE ROYAL SOCIETY

On June 17th the Royal Society of Canada presented Dr. Margaret Newton with the Flavelle Medal in recognition of her original researches into the nature of Puccinia graminis, the fungus that causes the rust diseases of cereals.

Despite the late date we would like to take this opportunity of offering our congratulations to Dr. Newton and also to the Royal Society on their choice of such an outstanding scientist for the award.

It attests to Dr. Newton's innate modesty to find that a good number of her fellow members of the Victoria Natural History Society know very little of the accomplishments that have made Margaret Newton an honoured name among plant pathologists throughout the world.

After graduating from McGill, and following a period of teaching at the University of Saskatchewan she became interested in the study of plant diseases through the encouragement of Dr. Buller of Manitoba University, and when the Dominion Rust Research Laboratory was established at Winnipeg she was appointed to the staff to study the organism causing "black stemrust of wheat" (Puccinia graminis tritici). Although often swamped with laboratory routine she carried on at least one piece of basic research and the results of these studies are some of the foundation stones upon which the whole rust control programme has been built.

After taking post-graduate work at the University of Minnesota, where she studied with Dr. Stackman who discovered physiologic races in stem rust organisms, Dr. Newton returned to Winnipeg and began to isolate all the races of rust that occurred in western Canada. This was fundamental, as the development of rust resistant varieties of grain depends on exposing them to all the strains of the disease which occur in the area where they will be grown. With this information on hand it was possible to develop the "host index" which is still used to record the races of rust which invade Canada each year and the relative frequency of each type. About one hundred and fifty physiological

racess have been recorded up to the present and new ones are being isolated all the time.

As the various races of rust do not differ at all in appearance they have to be separated by their tendency to infect or not infect certain varieties of wheat. In general the host index consists of a number of varieties of wheat of known susceptibilities (12 at present for wheat stem rust). Races are identified by recording the amount of infection on each variety when inoculated with the red phase (uredospores) or from the aeciospores off Berberis vulgaris - common barberry - which is the intermediate host of Puccinia graminis. The amount of infection is measured from 0-immunity to 4-very susceptible. Besides giving information regarding the types of rust present and their prevalence, this method also assures that there is always a supply of the various races available for testing purposes. In fact the breeding of rust resistant varieties of grain would not be possible without this fundamental information, and Dr. Newton and her colleagues have extended it to all the rust that infect cereals.

After Dr. Craigie discovered that the phase in the life cycle from the black spores on wheat to the development of aecia on the barberry, was sexual, Margaret Newton demonstrated that hybridization between races could be induced by mixing picniaspores of different races. Later she and her co-workers were able to demonstrate hybrids between known physiologic races which differed in infection characteristics from either of the parents. The tremendous importance of these facts to the rust control programme must be quite obvious. The plant breeder has no assurance that the variety that has immunity to the known physiologic races of rust when it was developed will not be exposed to an entirely new race before it has been in use for very long. The problem which we all thought would be solved with the first variety of resistant wheat of good quality has now developed into one of breeding a continuous stream of more and more resistant varieties.

The latest contribution to the life history studies of the rusts, made just before Dr. Newton retired from

the Rust Research Laboratory, is probably the most interesting although the full significance has not yet been fully explored.

During the studies on hybridization one of the pure cultures of a certain physiologic race was found to contain a proportion of pure white spores. When increased and used to inoculate the host varieties of wheat these off-type spores showed a certain proportion of infection such as would be expected from the parent while part was entirely unlike that of the parent. These results indicated that a mutation in the sexual stage of the life cycle had occurred. When the two nuclei of the black overwintering spore had united and by reduction division, formed the eight plus and minus sex spores, a rearrangement had apparently taken place in the chromosomes of one of these. This mutant, combining with a normal spore of the opposite sex had produced a proportion of white spores in the uridinal stage. After intricate and patient work of purification and multiplication Dr. Newton and her co-workers have been able to demonstrate that mutation had actually occurred. Being forewarned, the plant pathologists will now be on the alert for any upsurge of a new type of rust which might occur if a mutation takes place in nature.

Even after this rather sketchy outline of her accomplishments it is understandable that the name of Margaret Newton is an honoured one in the field of plant pathology. In the true internationalism of science she has often been called outside Canada, and Great Britain, the United States and Russia are among the countries that have been grateful for her expert assistance, while her scientific papers are in use wherever the fight is being carried on against that great destroyer of the world's food, cereal rust. We of the Victoria Natural History Society are indeed proud to count among our members one who has done so much to place the name of Canada high in her chosen field of science. W.T.

LONG-EARED OWL

The Long-eared owl very much resembles the Short-eared owl in size and colour, although it is somewhat the darker of the two, but the habits of the two birds are altogether different. The Short-eared owl flies by day or at dusk, the Long-eared owl only after dark. The Short-eared owl builds its nest after the manner of the marsh hawk, right out on the meadow, the Long-eared species generally uses some old crow's nest in the densest thicket it can find. It is a much more secretive bird, more difficult to study and altogether more typical of the group as a whole.

No bird is more astonishing at the nest. First it stands very straight and slim against the trunk in an effort to avoid being seen, but start up its nesting tree and it crouches down and slowly expands every feather, wings, tail, everything, until it becomes simply huge, then it lets forth an explosive snake-like hiss. A try at intimidation, nothing less! Its next move is even more surprising, for if you keep advancing toward it, it tumbles out of the nest in the most hopeless manner, goes crashing and banging to the ground and hobbles off with one wing dragging, and squawking and groaning too, in a manner hardly suggestive of an owl but looking back the while to see if you will follow. And then when this too fails it takes wing quickly and quietly, makes a small circle off through the bush, and comes back right at you in what appears to be a headlong attack, but which, somehow, it never carries to the point of actually striking. There are few birds indeed that show such a range and variation of reactions in defense of the nest.

The Long-eared owl is quite rare on the Coast; in the dry interior a few occur, but it is quite common in the willow and aspen thickets that border the sloughs and marshes on the prairies. It is one of our most useful birds.

F.L.B.

MARSH HAWK

By the white rump you shall know it, the white rump and the manner of flight. Look not too closely at colour or you will be confused. There are reports that in the East the Marsh hawk sometimes hunts ducks, and it may be that it has there taken to hunting down cripples left by hunters. In the West even this charge, if charge it is, cannot be laid against it, and its record is wholly clean. As a matter of fact there is no other hawk except the Sparrow hawk that can rightfully be said to be of more use to the farmer. Its entire life is spent cruising slowly back and forth over the meadows and marshes -- and the fields bordering them -- looking for the meadow-mice that comprise the greater part of their food.

The flight is most distinctive; quick irregular flaps, long easy glides, the wings, in the gliding position, being held above level. As there is no other hawk that sails with the wings above level this one characteristic is a certain field-identification that is absolutely good, the moment the bird comes within sight.

The plumages are quite confusing. Adult males are the same pale grey-blue that we associate with gulls, and females are quite a dark brown with much crossbarring, and the young are very dark brown, darker and more heavily barred than the females. But in all plumages and sexes the rump between the spread wings is snowy white, and again in no other hawk is this so.

The nest is on the ground in open marsh, but not over water, and the adult birds will put on a beautiful flight-display, and come ever so close to your head, if you approach; the attack is more feigned than real, but it is well worth watching.

F.L.B.

JUNIOR PAGE

Activities: October 2. As several different species of fungi were brought in by the members, Mr. Hardy was asked to identify them. After an explanation of the breathing apparatus of a fish by Dr. Carl, an experiment was made with two goldfish. One was put in a tank of water which had been boiled, while the other was put in fresh water, and the effects of lack of oxygen were observed. The plasticine modeling was then continued.

October 9. Dr. Carl demonstrated the life history of the mosquito, after which the members saw a film on the subject, and one about animals which prey upon fish. The life history and habits of the mosquito are summarized as follows by Marion Patterson:-

Mosquitoes:

Disease Carriers - Some mosquitoes are disease carriers. Such mosquitoes, as the female anopheles mosquito, transmit certain diseases, such as malaria and yellow fever, when they suck people's blood.

Reproduction - The female mosquito lays her eggs on the surface of the water in the form of a raft, so that they will float. When the eggs hatch, the larvae, which are headdownward, go directly into the water. These larvae are air breathers, and must come to the surface to breathe. This is done by means of small tubes, through which air is drawn in.

Control - The method of killing the mosquitoes is to put oil on the surface of the pond in which the larvae are to be found. The larva, when it tries to penetrate the film of oil with its tube, gets it clogged and suffocates. A few frogs, fish, or turtles, will also soon rid a pond of all mosquito larvae.

Sex Distinction - the best means of distinguishing between the adult male and female mosquitoes, is to examine the feelers, or antennae. The female's are shorter and less feathery than the male's. The

female is the only one that bites.

October 16th: Miss Newton, of the Museum Staff, kindly consented to instruct the members in modeling. Several models of humming-birds and nests were made, the three best being kept for exhibition.

Brian Ainscough,

Junior Editor.

Sandhill Cranes were observed by Mr. de Witt of Cadboro Bay as follows:

Sept. 2, 4 birds flying and calling; Oct.19, 3 flying high; Oct.23, 3 flying, one calling. Cranes were also seen by Lieut.-Col. Brooke Stephenson of Victoria while hunting at Parker's near Rocky Point, Sooke, on October 17th.

New Mammal Book:

"Mammals of the Eastern Rockies and Western Plains of Canada" by A.L. Rand, National Museum of Canada, Ottawa. Bulletin No.108, 89 illustrations, 237 pages, 1948. An excellent booklet with many illustrations, some in colour. While the area covered by the booklet is mainly the Province of Alberta many of the species dealt with are also found in British Columbia which adds considerable interest to the publication. Available from the King's Printer, Ottawa, at 50 cents a copy.

NOTICE OF MEETINGS

- TUESDAY GENERAL MEETING, Reading Room of the
Nov.9: Provincial Library at 8 p.m.
Speaker: Mr. N. C. Stewart, Surveyor-
General, Department of Lands, on
"Surveying and Mapping in British Columbia."
- MONDAY AUDUBON SCREEN TOUR: Prince Robert House
Nov.15: Auditorium at 8 p.m. William Ferguson,
"This Curious World in Nature."
- TUESDAY GEOLOGY GROUP MEETING, Provincial Museum
Nov.23: at 8 p.m. Mr. Winkler plans to arrange for
a series of talks by specialists on physical
geology dealing with earth features and how
they are formed. All interested are invited.
- TUESDAY MARINE ZOOLOGY GROUP, Provincial Museum at
Dec.7: 8 p.m. Mr. G. A. Hardy.

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A. Marsh Hawk; scale, $\frac{1}{8}$
Adult male Juvenile



B. Long-eared Owl; scale, $\frac{1}{8}$

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Jo